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MISSOURI STATE MEDICAL ASSOCIATION

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NUMBER 1

JANUARY, 1947

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ORIGINAL ARTICLES

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(Contents Index Page 5)

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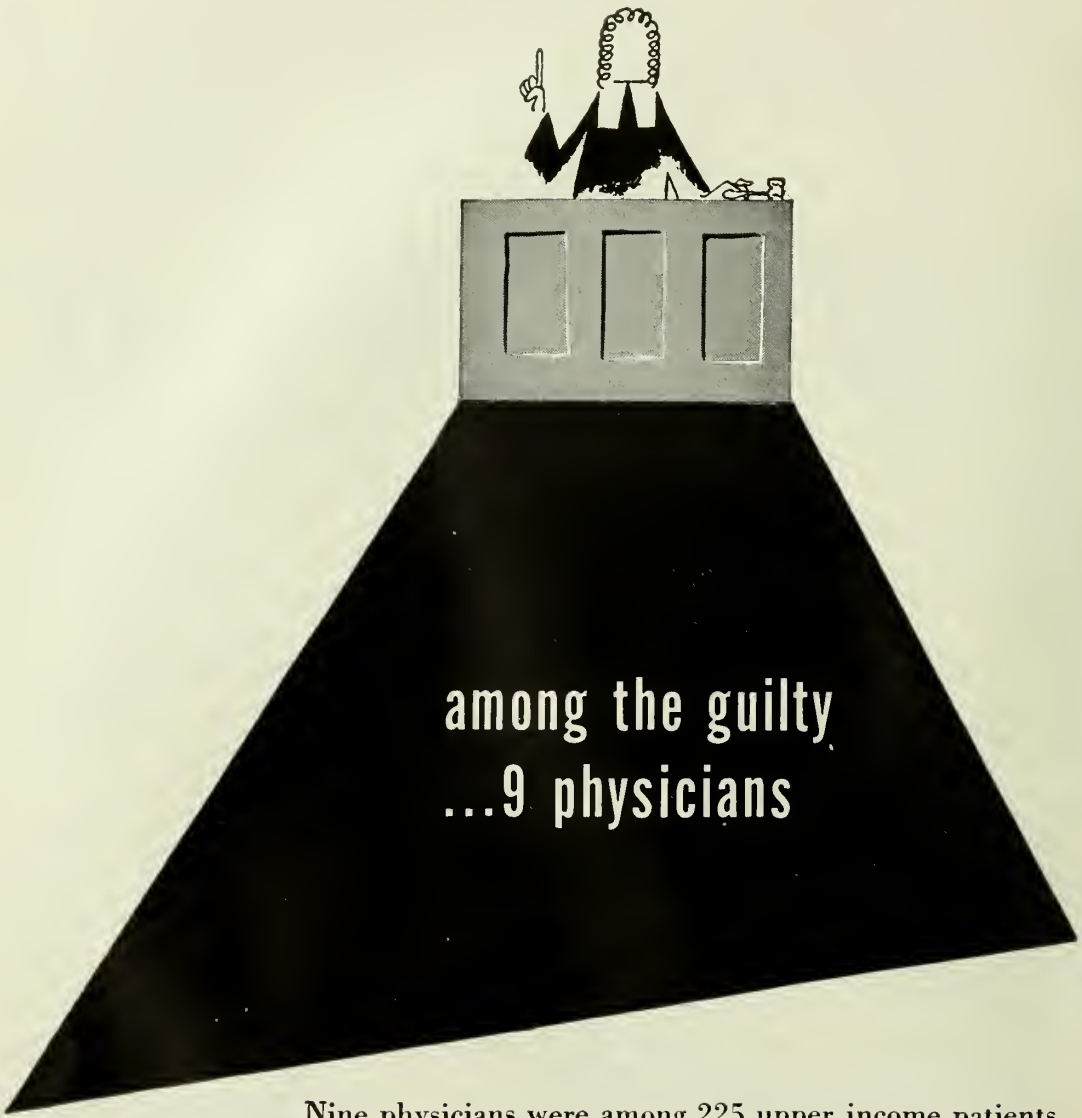
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CONTENTS

Heart Disease in Pregnancy. Burton E. Hamilton, M.D., Boston, Mass. 17

Tuberculosis Case Finding Studies in St. Louis County. H. I. Spector, M.D., E. G. McGavran, M.D., Ruth I. Allen, M.D., Dorothy W. Burke, Ph.D., St. Louis 21

Compensation in One Trauma Cancer. M. G. Seelig, M.D., St. Louis 27

Abstracts and Digests—
The Importance of Postsanatorium Care of the Tuberculous 32

Book Reviews 35, 45, 47

Editorials—
The Life Span of the Presidents 37
Reviews Health and Welfare Terms in Contracts 38

News Notes 39

Deaths 39

Society Proceedings 41

Miscellany—
Cancer Clinics at the Ellis Fischel State Cancer Hospital 42

Rural Health Conference to Be Held in Chicago February 7 and 8 42

Woman's Auxiliary to the Missouri State Medical Association 47

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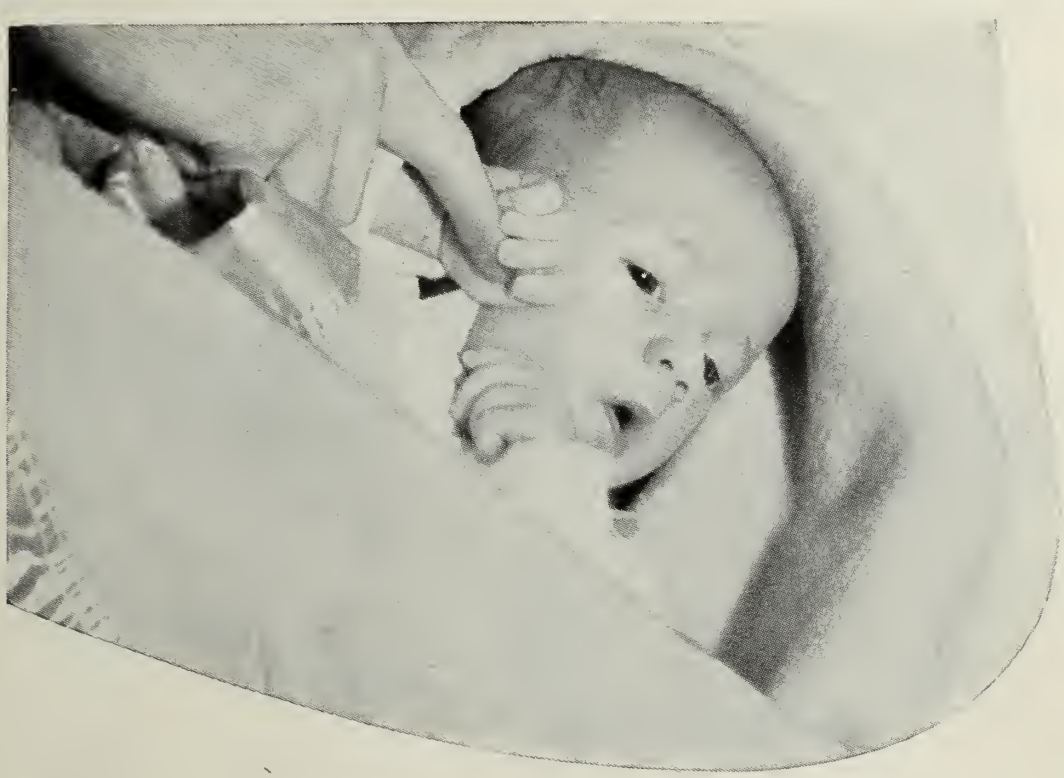
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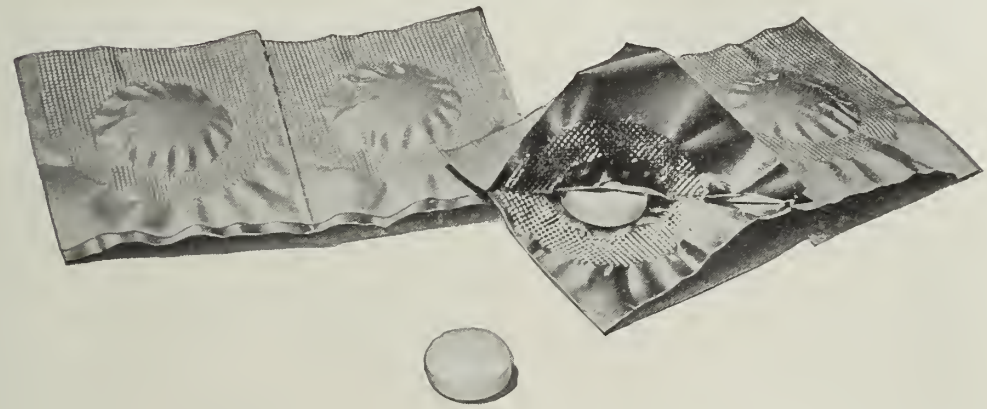
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1. Bunn, P. A.: in Conferences on Therapy: New York State J. Med. 46:527 (March 1) 1946. 2. György, P.: Evans, K. W.; Rose, E. K.; Perlingiero, J. G., and Elias, W. F.: Pennsylvania M. J. 49:409 (Jan.) 1946.

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1. Poppel, J. K.: JAMA 127: 435 (Oct. 6) 1945.



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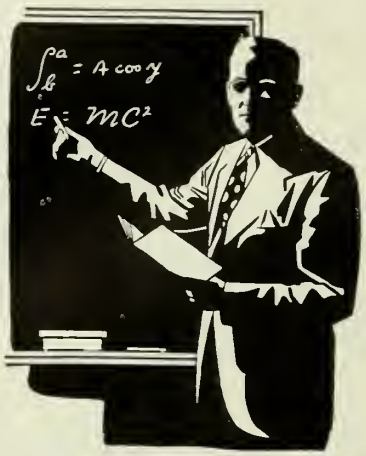
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HEART DISEASE IN PREGNANCY

BURTON E. HAMILTON, M.D.
BOSTON, MASS.

Justification for my talk on this subject is that for approximately twenty-five years I have been in continuous charge of a heart clinic at the Boston Lying-in Hospital. A formidable amount of statistics has naturally accumulated. I will certainly not recount them all, but some, I hope, are interesting to any group of physicians.

The various heart diseases must appear in different proportions in different parts of the country, though probably geography makes less difference in the heart diseases that affect young women of child-bearing age than it does in the proportions of the various heart diseases found in general heart clinics. Cardiovascular syphilis is not common in Boston and has diminished steadily and greatly during the last twenty-five years. One half of 1 per cent of the hospital population has positive serology, and almost none of them has developed cardiovascular symptoms at the age when they report to the hospital. There is the usual share of congenital heart defects and the problems they present in relation to pregnancy are extremely interesting to a cardiologist. But the problems are too diverse and the cases are too rare to warrant their discussion here today. Severe Grave's disease and severe toxicity with adenomatous goiter seem to be nearly incompatible with pregnancy and few of them occur in an obstetric hospital. Ninety-five per cent of our cardiac cases have rheumatic heart disease. Though the incidence of this disease varies a good deal in the United States, it can be found everywhere, probably nowhere more commonly than in Boston. Seventeen out of every thousand women that come to the Boston Lying-in Hospital have rheumatic heart disease, and this does not include those that have had rheumatic fever and have recovered without severe heart damage. These seventeen out of a thousand have contributed to the maternal deaths at the rate of one hundred forty out of every thousand deaths. So the cardiac cases are an important group to the obstetrician. From the heart specialist's and practitioner's point of view, the problems that pregnancy brings to the young woman with heart disease cannot be ignored, for many more than half of my private patients with rheumatic heart disease who are of child-bearing age have married, and many more than half of those that have married have become pregnant. Many more than half the young adults with rheumatic heart disease are women.

I suspect that every member of this audience has had a young girl or young woman with mitral stenosis (or her parents) ask if she can be married, and have children safely? These are difficult questions even if one knows all the statistics.

It has taken me a long time to attain a comfortable point of view in giving advice in such cases. Pregnancy is not a disease. If it were, one should honestly advise all cardiac patients to remain childless. It is more or less desirable, how desirable no one knows except the parents. I have had women who accepted joyously the risk of a less than even chance of having a child, others who preferred not to take a seemingly slight risk. If one advises the woman according to his own philosophy or belief he is stepping out of his place as a physician and ordaining himself a priest or certifying himself a sociologist. The patient takes the risk the physician does not. Within the law, the choice of pregnancy or not is the patient's. She is entitled to enlightenment concerning her risk. It saves much grief if a patient who has a cardiac condition knows her risk for pregnancy before she becomes pregnant; thus the importance of school, health and premarital examinations. Regular examinations of the cardiac patient should continue after marriage. The cardiac patient may change her status at any time. The fact that she has survived a pregnancy comfortably does not insure her for the next pregnancy.

Presented at the 88th Annual Session of the Missouri State Medical Association,, March 24-26, 1946, St. Louis.

Women with minimal or no signs of rheumatic heart diseases are divided into the following groups:

(1) Favorable Cases.—These are able to lead reasonably normal lives without symptoms from their hearts and have no defects other than the heart disease. Favorable cases have a maternal death rate of approximately 2.5 per cent. This is about .5 per cent higher than their annual death rate when not pregnant. Twelve per cent fail to have a living child after the pregnancy is over.

(2) Unfavorable Cases.—These have had heart failure while leading normally active lives or have a complicating defect such as hypertension in addition to their heart disease. Unfavorable cases have a maternal death rate of approximately 16 per cent. Their per annum death rate when not pregnant is approximately 7 per cent. They have about an even chance of having a living child at the end of a pregnancy.

The unfavorable cases who have auricular fibrillation have a maternal death rate of nearly 33 per cent and about an even chance of having a living child at the end of the pregnancy. Their death rate per annum when not pregnant is approximately 8 per cent.

One cannot group all cardiac patients into a few subclassifications accurately. Every cardiac patient differs from every other to some degree. One cannot collect statistics that closely fit every individual in a group. One can, however, venture to grade the risk of pregnancy up or down for individuals within these groups.

Following are some of the factors that modify advice to the individual cardiac patients. The youngest and the oldest patients do not do as well as the others. Recurrences of rheumatic fever among patients with chronic rheumatic heart disease are not common in pregnancy, not more than 1 per cent in pregnancy in my experience. But what few there are, are many times as common in the young women with chronic rheumatic heart disease who are under 23 years of age. Cardiac patients who are more than 35 years of age have twice as many instances of congestive heart failure as do those who are under 35 years of age. So the prudent cardiac patient will plan her pregnancies between the ages of 23 and 35.

Statistically, there is only slight difference in maternal risk according to the valve involved. However, those that have free aortic regurgitation cannot be protected against sudden heart failure so well as those that have typical mitral stenosis. Those that have both these valve involvements behave like those that have mitral stenosis alone and usually give timely warning of impending failure if they are watched. Much the most favorable cases are those that have merely moderate enlargement of the heart and a loud apical systolic murmur, no diastolic murmur.

In general, the larger the heart the more the chance for congestive heart failure. A good capacity for effort is, of course, a reassuring finding.

No matter how highly one may rate one's ability to estimate the capacity of a cardiac patient, let no one think he can predict closely how any individual heart will behave during pregnancy.

What does pregnancy do to the cardiovascular system? Years ago we plotted the time in pregnancy when patients with heart disease, who developed heart failure, first developed the failure. Few had congestive heart failure before the sixth month. Failures clustered in the seventh and eighth calendar months. Few failed during the ninth month and few at term or after delivery. To be sure, many who had failed before failed again at or after delivery. Years later, considerable direct and indirect study of the circulatory changes in normal pregnancy showed among other things marked changes in the circulating blood volume, a rise of almost 50 per cent. With this, there is a moderate blood dilution, not proportionate, however, to the increase in the total volume. There is increased oxygen consumption and an increased cardiac output. (Add to this the usual material increase in body weight.) By averaging all these and other suitable observations one can construct a curve that shows graphically the load on the circulation in pregnancy.

Rare cases may show marked increase in the demands on the circulation early in pregnancy. Occasionally a woman with mitral stenosis, hitherto not badly handicapped by her heart disease, suddenly will develop dyspnea, rales, severe hemoptysis, apparently associated with a sudden premature increase in circulating blood volume. The majority do not show the heavy load of pregnancy, however, until the sixth month. In some there may be a delay until the middle of the seventh month or later. The change in the load may come slowly or suddenly, between weekly visits to the physician, and the load may not be sustained as in the average curve. The evidences of the load may disappear in a week or two. So no matter how closely one thinks he can estimate capacity of an individual heart, he must know that he cannot tell how suddenly, violently and when the load of pregnancy will be imposed upon it. Therefore, one must watch his cardiac patients closely, see them at least once a week through pregnancy and instruct them to report if signs of respiratory or circulatory embarrassment appear between visits.

Though the time and duration of the load vary considerably in the individual cases, all normal cases give evidence of the load before the end of the eighth month. And all of them show a lightening of the load during the last calendar month. The average recession of the load amounts roughly to half of its total. When we first noted this phenomenon we distrusted our studies. But comparison of the curve of the time when heart failure first appeared during pregnancy confirmed it. And other observers have repeated the studies and found, also, the lightening of the load during the last four

weeks of pregnancy. For a long time it has been known to patients and midwives that there is "lightening" toward the end of pregnancy, though the nature of this lightening was not understood. This easing of the demands on the circulation late in pregnancy and, indeed the shape of the whole curve, is a convenient thing for physicians to remember. If, for example, a patient suddenly develops signs of circulatory or respiratory embarrassment before the sixth month or after the eighth month or on or after delivery for the first time, something other than normal pregnancy is bothering her, perhaps an anemia, perhaps a toxemia, hitherto unsuspected, or an infection. Even long before we had shaped the curve experience had taught us a working rule: "If heart failure appears for the first time before the sixth month or after the eighth, or at or after delivery (1) it is not heart failure; (2) If it is heart failure, there must be some complication of the pregnancy."

Perhaps the most important rule that the curve of the load of pregnancy indicates is, "Do not interrupt cardiac patients because of their heart condition after the load of pregnancy has become heavy." It used to be sound obstetrics to interfere from four to six weeks before term to spare the patient the supposed increasing and perhaps needless risk of the last few weeks. The child was viable, why continue the pregnancy? When this rule was followed, statistics were bad. There was a high infant mortality and a high maternal mortality. What was done was to impose the load of delivery on the peak of the load of pregnancy, thereby subjecting the patient to a strain that was greater than if one waited until the peak of the load was passed. Even when the patients are in severe heart failure in the sixth month when the load is beginning to be heavy, it appears to be safer to try to nurse them along and wait for the expected improvement that will certainly follow the diminution of the load on the circulation during the last four weeks. If one waits that long why not wait until term? This has resulted in a much smaller number of hysterotomies done for cardiac reasons, and the small but inevitable risk of hysterotomy no longer adds to the inevitable risk of the cardiac patient in pregnancy. A corollary of this rule is that if the patient is to be interrupted she should be interrupted before the sixth month. The rule is, "Never interrupt a cardiac patient for cardiac reasons when the load of pregnancy is heaviest." If the cardiac failure occurs, not because of the load of pregnancy but because of a complicating condition such as a toxemia and interruption is indicated to remove the toxemia which is causing the heart failure, then interruption should be done.

One of the most satisfactory and perhaps informative things that has come out of the study at the heart clinic is the curve showing maternal mortality for the last twenty odd years. The death rate among the cardiac patients fell from 15 and 20 per cent, where it had been for at least eight years before the heart clinic was started, to around 3 per cent. A few years later it rose to 5 per cent coincident with losing the social worker and some of the physicians who were working in the clinic. Tightening of the rules, replacements and adding resident cardiologists resulted in a still further drop in maternal mortality. It has stayed there and even dwindled since then. Even during the war years it has not risen. To be sure, maternal mortality in general has diminished but the improvement in the maternal mortality among the cardiac cases came suddenly, not as an accompaniment of the general improvement. The improvement among the cardiac patients coincides with the development of rules for their care and facilities for the application of these rules. Other heart clinics in obstetric hospitals have found and shown a similar drop in maternal mortality when similar systems for caring for the cardiac effectively were introduced. This curve not only proves that it pays to take care of cardiac patients, a difficult point to prove, but as a corollary it shows that many at least of their greatest dangers are removable. Their course is not dominated by uncontrollable recurrence of rheumatic carditis or progress of smoldering carditis. They are not completely at the mercy of their disease. It also shows that an important factor and probably the most important factor in pregnancy is treatment and the ability of the patient to take advantage of treatment. If one gives statistical information to young women who have rheumatic heart disease who are contemplating marriage and pregnancies, one must tell them that the chances for success that are quoted depend on their having proper care and their ability to take advantage of proper care.

TREATMENT

"Proper care" for the average "favorable" cardiac patient is a simple matter in some ways, but it requires a lot of work for the physician and access to a hospital for the patient at any time during pregnancy; control of weight and nutrition; a daily regimen so that they expend the same amount of energy every day; warning them against usual temptations to break their regimen such as holidays, visitors, sickness in the family, moving, housecleaning, shopping trips; seeing them every week. If in spite of precautions they show signs of congestive heart failure, put them to bed under hospital conditions and keep them under close observation until they are delivered. If they do not show congestive heart failure but show signs of embarrassment of circulation and respiration that are normal in pregnancy, reduce their expenditure of effort. Tell them to stay at home. Thus one usually can anticipate congestive heart failure.

EARLY RECOGNITION OF CONGESTIVE HEART FAILURE

There is often disagreement among cardiologists as to what are the first signs of heart failure. It is even impossible, as is the case with "insanity," for anyone to define congestive heart failure so that

the definition cannot be destroyed by any informed physician who undertakes a dispute. But it is an every day matter to diagnose congestive heart failure and diagnose it correctly. It is harder, without experience, to diagnose congestive heart failure in pregnancy than in other situations.

Normal pregnancy causes many signs and symptoms that suggest congestive heart failure. There may be more rapid breathing and increased respiratory exchange so that even at rest, when the load is heavy, the normal patient may breathe hurriedly and deeply. Sighing respiration is common and small waves of dyspnea. There may be orthopnea. The pulse rate is quickened. The heart size may increase. There is fluid retention and there may be edema. The veins are fuller than usual. And the increased circulating blood volume previously discussed is the one sign that is a sure accompaniment of all but the briefest congestive heart failures. In fact, pregnancy normally increases circulating blood volume about the same amount that congestive heart failure increases it. In the search for early signs of congestive heart failure in pregnancy, at the patient's weekly visit I listen for persistent rales at the lung bases. Some dispute the value of this and say that in normal pregnancy there may be rales. True enough, but such rales disappear after coughing. Some also say that breathlessness precedes the rales in the onset of congestive failure. This is usually true, but breathlessness is common in normal women in normal pregnancy. But if a patient has no rales and no breathlessness, one can dismiss the possibility of heart failure until the next visit. If either is present, study the patient and try to make up one's mind and, if one decides there is congestive failure, put the patient to bed and treat her thoroughly. If one decides that there is no congestive failure, reduce the day's activities and watch the patient.

Vital capacity, of course, diminishes with congestive heart failure, and this reduction of vital capacity should accompany breathlessness and precede rales. I am sorry to say that I have not found routine vital capacity practical for diagnosis of failure or threatened failure. The test to be trustworthy requires a trained patient. It is cumbersome. I have, for years, however, weighed each patient at every visit. Weight gain nearly always precedes congestive heart failure. Sudden or steady excess weight gain is an important warning sign. In fact, if a patient has not gained weight between visits and has no rales, I feel sure she is not developing congestive heart failure. It is easy, accurate and informative. Weighing the patient every day is also a useful gauge for estimating the results of treatment of congestive heart failure in general as well as in pregnancy, and when a cardiac patient has once failed and is on a strict regimen, I direct the patient to record the weight every morning and report a gain of more than three pounds, even if there are no subjective symptoms.

SPECIAL ITEM IN THE PREVENTION AND TREATMENT OF CONGESTIVE HEART FAILURE IN PREGNANCY

The pregnant woman with heart disease is sensitive to fluid administration. There are special temptations to give her large amounts of fluid, such as pyelitis during the administration of sulfa drugs. Nearly everyone now is careful to give a low sodium intake in pregnancy and some are still careful to restrict fluids. I am inclined to do both. Undoubtedly one can give cardiac patients fluids more freely without retention, in spite of the present popular custom to allow or encourage cardiac patients to take fluids freely if sodium intake is low. But too many pregnant cardiac patients have developed edema of the lungs from drinking plain water to allow me to believe that it is safe to give any amount of fluid in pregnancy even if the sodium is restricted enough.

Aside from the matter of special sensitivity to fluid administration of pregnant women with heart disease, the treatment of congestive heart failure is the same in pregnancy as under usual circumstances.

NEED FOR FURTHER STUDY OF THE LOAD OF PREGNANCY ON THE HEART AND CIRCULATION

The normal load of pregnancy has been measured and depicted graphically, but no one should be satisfied with this. It may be "normal" to have enlarged hearts, quickened pulse, hurried cardiac output and increased blood volume, blood dilution, edema; but this does not mean that it is desirable. "Normal" women stand these phenomena well enough. But many abnormal women get pregnant, women with heart disease, lung diseases, kidney disease, hypertension and so on. They may not stand the "normal" circulatory and respiratory changes that mean increased work on vital organs. It may be that by further study methods may be found for safely reducing the normal loads. The circulatory changes may be the accompaniment of hormonal changes that can be controlled and their undesired effect lessened, by hormone administration or by diet in all its chemical implications. More and continued research on these matters is in order.

The former great dangers of pregnancy are receding, sepsis pneumonias and other coincident infections. It is not entirely unreasonable to hope that the toxemias are on their way out. They are less common. Perhaps something great will come from the recent demonstration of a potent toxin in menstrual fluid, such as evidence that this toxin is present in the blood of women with toxemia of pregnancy, and that an effective antitoxin can be induced in rabbit serum.

The risk of pregnancy to normal women is dwindling.

It is only reasonable to believe that now (and more so in the near future) the likeliest way to reduce further the risks and improve general ma-

ternal mortality statistics will be to concentrate on the women who are handicapped by chronic disease. In Boston those pregnant women with chronic heart disease far outnumber those with all the other chronic diseases. And I feel sure that this is true throughout the country if one includes as "cardiacs" those that have essential hypertension. I have not included them in the discussion.

THE PROBLEM OF HYPERTENSION IN PREGNANCY

The general methods (that I have tried to discuss as much as is suitable in this brief time) that have reduced mortality statistics for cardiac cases in pregnancy are comparatively well defined.

If a young woman with mitral stenosis wants to learn her chance for surviving pregnancy, for having a healthy child and for living to see the child grow up, one can tell her pretty accurately from available statistics. One also can assure her that there is convincing evidence that if she survives the pregnancies, there is no reason to feel that she has shortened her life by aggravating her heart disease. And there are firm rules for guiding her care. When a young woman with hypertension comes with the same questions, I, for one, feel no confidence that I can answer her. I believe the data are inadequate. Methods for subclassification into more or less favorable groups seem to me either complicated or indefinite or both. Treatment is comparatively uncertain.

Probably the country over, there are as many women of child-bearing age with hypertension and with rheumatic heart disease. At the Boston Lying-in Hospital we attempt to subclassify the hypertensives into favorable and unfavorable groups. So far, the prognosis for maternal and infant mortality in these subgroups compares closely with the statistics in the similar subclassified groups of those with rheumatic heart disease. The women with hypertension are, then, no better off than those with rheumatic heart disease. Furthermore, one cannot reassure those with essential hypertension as one can assure those with rheumatic heart disease, that if they survive pregnancies they have not shortened their lives. Indeed, some of us suspect that there is a tendency for pregnancy to hasten the progress of hypertension although we cannot yet support this suspicion with statistics. We would like to know.

Few if any can conceive of a cure for mitral stenosis. All can conceive of and hope for the discovery of a cure for hypertension. If such appears there should quickly be special study to determine its effectiveness in relation to pregnancy.

From many angles, hypertension in general and in particular in relation to pregnancy needs study badly. I wish it were feasible for me to look forward to conducting another twenty-five year plan. Certainly others should and will, in particular, Dr. Jensen. No one else has been so thorough in the study of the accumulated knowledge of the world on the heart in pregnancy.

I think it is clear to all physicians that reduction of maternal mortality among cardiac patients to the minimum requires a great deal of time and money per patient. It is also certain that the same is true for the large group of women with hypertension. It is likely that other less common chronic diseases to which women of childbearing age are subject deserve comparable attention.

Normal women require, on the average, comparatively little time and money for adequate care in pregnancy and puerperum. I feel strongly that when public or private money is spent to improve maternal care provision should be made to spend adequate, and this means proportionately large amounts, for the care of the handicapped patient.

319 Longwood Ave.

TUBERCULOSIS CASE FINDING STUDIES IN ST. LOUIS COUNTY

H. I. SPECTOR, M.D.*
E. G. McGAVRAN, M.D.
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ST. LOUIS

Tuberculosis is a declining disease in the United States as indicated by the death rate from this disease in 1900 of 202 per 100,000 population and of 41.3 in 1944, or a drop of 80 per cent in forty-four years. Despite this decline, tuberculosis remains a prominent contributor to the general death rate and still occupies first place as a cause of death in certain age groups. During the period of 1939 to 1943 reports from state health departments indicated that tuberculosis was the principal cause of death of persons between 15 and 35 years of age. In the age group of 20 to 34 years, one in every six deaths in the white population and one in every three in Negroes was due to tuberculosis. If one takes into consideration that for every death from tuberculosis there are at least five active cases, one can appreciate the magnitude of the problem.

The eradication of tuberculosis is far from complete. It is a problem today and will remain so for some time in the future. Since tuberculosis is a controllable disease, the question that confronts the person in tuberculosis work is why complete eradication of this disease has not been accomplished. Analyzing the situation one finds that perhaps the chief obstacle to control of tuberculosis is late diagnosis, which invariably means advanced disease. The reasons for late diagnosis are many but one of the outstanding ones is that clinical, pathologic, roentgen ray and laboratory evidence seem to indicate that tuberculosis in an active form can exist in the human body without producing noticeable deviation from normal health. The symptomless condition when coupled with the human tendency to minimize the seriousness of an onsetting disease explains why many who seek

*Deceased. This paper was in process of preparation under the direction of Dr. Spector at the time of his death.

relief for their symptoms have advanced disease by the time the diagnosis is made.

It becomes obvious that the old method of waiting for the patient to come to the clinic or doctor, which he does not do until he develops symptoms, or for the doctor to wait until symptoms develop before he suspects tuberculosis, is not only an inefficient one but a costly one. It invariably leads to far advanced tuberculosis—to infection of the immediate family and the community in general with subsequent loss of life and prolongation of the disease. It explains why up until recently 90 per cent of the patients in sanatoria are either in the advanced or far advanced stage of disease and only 10 per cent are in the early stage at the time diagnosis is made.

To reduce infection in the community as well as to reduce mortality from this disease, it becomes imperative to find the active disease in an early stage before symptoms develop. It becomes therefore necessary to make case-finding plans with a view of finding tuberculosis in the inactive as well as in the active stages, since the former are potential sources of future cases. A method which has in recent years proved successful in detecting the disease in the early and preclinical stage is case-finding through the medium of mass radiography of the chest in selected groups in industry, hospitals, schools and colleges.

Mass radiography is not new but until recent years it was impractical owing to the excessive cost of such a procedure. In the decade between 1935 and 1945, the development of an inexpensive photofluorographic process in which a fluorescent image of the chest is photographed on a film of reduced size made mass radiography practical.

The first large scale application of 35 mm. photofluorography was made by deAbreu in Brazil in 1936. Shortly thereafter Franke developed a photofluorographic unit that was used extensively on the European Continent in 1937 and 1938. Danish and English workers were experimenting with 35 mm. photofluorography in their respective institutions. Mass radiography is now being practiced throughout Canada and extensively in England.

In the United States, Powers of New York developed a rapid film method employing 14 by 17 inch sensitized paper. Potter in 1938 produced the so-called photoroentgen unit making films 4 by 5 inches in size. Later, Potter, Douglas and Birkele conducted a practical field survey including hundreds of cases in which both 4 by 5 inch and 14 by 17 inch celluloid films were taken and read independently. These and later workers found the small film method highly satisfactory for mass radiography. During World War II the 4 by 5 inch photoroentgen method was adopted by the Army for routine chest roentgen ray examination of all men being inducted into the armed forces.

Case finding through the medium of mass radiography is being practiced now on a large scale by the United States Public Health Service, by many state, city and county health departments and by many nonofficial agencies such as the tuberculosis societies.

In three years beginning with 1942, the United States Public Health Service read 1,035,303 films, finding 12,508 cases of tuberculosis, or 1.2 per cent. Of these, 8,377 (69.2 per cent of the 12,508 cases) were found to be minimal, 3,070 (25.4 per cent) were moderately advanced, and 648 (5.4 per cent) far advanced. This is sufficient proof that the method of mass radiography in which the roentgen ray is taken of the patient before he develops symptoms is the most effective method of detecting tuberculosis in the early stages.

Because of its proved effectiveness, the principle of mass radiography has been approved by the Industrial Health Committee of the American Medical Association and by the St. Louis County Medical Society in 1944 and later by the Council of the St. Louis Medical Society.

In 1941, the Tuberculosis and Health Society of St. Louis was prepared to provide facilities for a screening program in St. Louis and St. Louis County. Due to a lack of data and a lack of appreciation of the needs by some medical and health authorities, the project was postponed.

In 1942, in St. Louis County alone, there was a 300 per cent increase in new tuberculosis cases over the previous five year average. This increase did not include Selective Service figures and upon analysis was found to be due chiefly to nonresidents, possibly as a result of war industry. The accuracy of these figures and explanation for them was seriously questioned by some health authorities.

In 1943 an even greater increase in new tuberculosis cases was reported and for the first time the tuberculosis death rate stopped its downward trend and started upward.

In the face of these facts, it was obvious that something should be done. A case-finding committee of the Tuberculosis and Health Society of St. Louis and St. Louis County was formed to institute a screening program. During this period many community agencies in St. Louis County became active and concerned over the tuberculosis situation. For an example, the school superintendents' organization held several meetings at which actual data were discussed with the Health Department and the Tuberculosis Society representatives. This group passed formal resolutions requesting a screening program for junior and senior high school students and all school employees.

Similarly, through the Industrial Hygiene Division of the County Health Department management and labor organizations were approached and they expressed a desire for screening services and a willingness to cooperate fully in the carrying out of such a program. The St. Louis County Medical

Society Public Health Committee similarly endorsed the idea.

The Tuberculosis and Health Society appropriated $20,000 in the spring of 1944 for the purchase of a portable 35 mm. photofluorographic unit, to hire technicians to operate the unit and chest specialists experienced in roentgen ray work to read the films. In the operation of any such project the soundness of procedure determines the success or failure of the program. The case-finding committee of the Society therefore asked the County Health Department to prepare procedures for the first six months of operation which were requested in the county area. Following careful study of other programs in other areas, the County Health Department prepared a complete set of procedures which was submitted to and approved by the Medical Society, the superintendents' organization, the labor unions and management. Needless to say, this was not done without some compromise on the parts of all groups concerned and included the following policies:

1. The use of records as similar as possible to those used by the United States Public Health Service, identical forms being used where possible to enable comparison of analyzed data.

2. The administration of the unit and technicians was to be placed solely under the official health agency during its work in the area covered by the official health agency, the Tuberculosis Society to be solely responsible for the hiring, paying and discharge of employees of the unit.

3. Industries and schools would be offered the service only on the basis that all employees or groups to be screened would participate, to prevent an unfavorable case selection.

4. All films of a suspicious or questionable nature were to be followed by a 14 by 17 film taken by the unit.

5. This service should be offered without charge and the results of the screening reports of both small and large films and the large films themselves should be available to the family physician upon request.

6. That the doctor-patient relationship be maintained through referral of all positive findings to the family physician.

7. That where plant or school physicians existed, reports on positive cases could be made to medical personnel in charge, only if a signed letter from such agents indicated that these reports would remain confidential between the medical department and the patient.

8. That in contacting industry for prescreening, postscreening, and educational work, all matters would be handled through the Industrial Hygiene Division of the County Health Department to prevent duplication.

9. Physicians used for reading all films must be accepted specialists in chest work and in reading films. And if possible, the same individuals should be used throughout the screening program.

During the case-finding survey in St. Louis County, 35 mm. films were taken of students and staffs in thirty schools, of employees in thirty-eight industrial plants and of six other groups consisting of contacts, volunteer workers, social workers, Health Department staff, university students and parent groups.

In the school studies 99 per cent of the total personnel and students to be screened were actually filmed. In industry, due to changing shifts, only 68 per cent of total plant personnel were screened although, here again, close to 100 per cent of all persons present in the shift or process being studied were filmed.

The data has been analyzed by a statistician employed by the Tuberculosis Society and can be divided into four chief divisions.

Division I. The total group screened was 37,329 persons. On a percentage basis these were analyzed according to those (1) with pathologic condition, (2) without pathologic condition, (3) with tuberculosis, (4) with suspected tuberculosis, (5) with other pathologic condition, (6) in schools, (7) in industry, (8) other, (9) male, (10) female, (11) white, (12) Negro, (13) in different age groups.

Division II. The total group rechecked on 14 by 17 inch films; 927 large films were taken out of 1,265 recommended. These were analyzed on the basis of the total group screened. On a percentage basis they were analyzed according to those with (1) definite tuberculosis, (2) suspected tuberculosis, (3) nontuberculous pathologic conditions, (4) the essentially negative. This is the basic table of the second area and these findings are correlated with the findings of the 35 mm. film and are analyzed and further broken down according to schools and industry and other groups.

Division III. The total 347 cases of tuberculosis diagnosed by roentgen ray. This group was analyzed according to stage of disease, race, age and sex, as related to the total group screened, and was analyzed more specifically according to minimal, moderately advanced and far advanced as determined by roentgen ray.

Division IV. In the first year of the screening program 211 positive tuberculosis cases were found of whom 81 were county residents. This group of county residents was analyzed on the basis of activity as reported by the family physician and clinic six to twelve months after the survey was completed.

The total analyzed material in the form of tables and charts is too voluminous for reproduction but is available for study by anyone interested. Only the most significant findings from these exhaustive studies, which in most respects conform to other similar published studies by the United States Public Health Service, are presented.

As has been pointed out previously, the purpose of the mass screening is not to diagnose tuberculosis but to discover early or suspicious cases of tuberculosis so that careful continuous medical

supervision may prevent breakdown, or, find the disease in its minimal stage.

In the first division, the total percentage of the 37,329 people screened by the 35 mm. film showing some chest abnormality which deserved further study equals 2.9 per cent. Of the total 2.3 per cent were suspected of having tuberculosis and 0.9 per cent other pathologic chest conditions.

In the second division, upon further study by 14 by 17 inch film, 1.2 per cent were found to have either pulmonary tuberculosis or suspected tuberculosis. In other words, better than one person out of every 100 was found to need careful constant medical supervision.

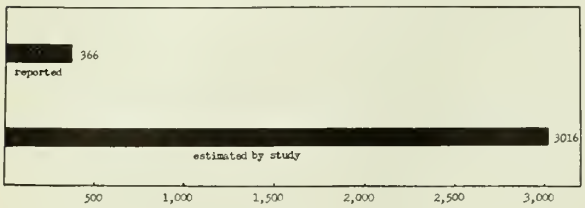


Fig. 1.

Since the study represented a fair cross-section of population of the St. Louis County area, the 37,329 screened is better than 10 per cent of the County population, and since it was weighted in favor of low rather than high incidence groups because of the large proportion of high school students screened, the estimated amount of tuberculosis by screening is probably much more accurate than the usual estimate of ten times the number of deaths.

There is a large discrepancy of about 50 per cent between the tuberculosis suspects found by 35 mm. film, 2.3 per cent, and by 14 by 17 inch film, 1.2 per cent. This is due to a frank overreading of the 35 mm. film which could no doubt be reduced to a lower figure but with a resulting danger of loss of specificity. It was preferred to err on the side of reading too much rather than too little on 35 mm. films since no report went to the patient until after a recheck on a large film confirmed or negated the findings.

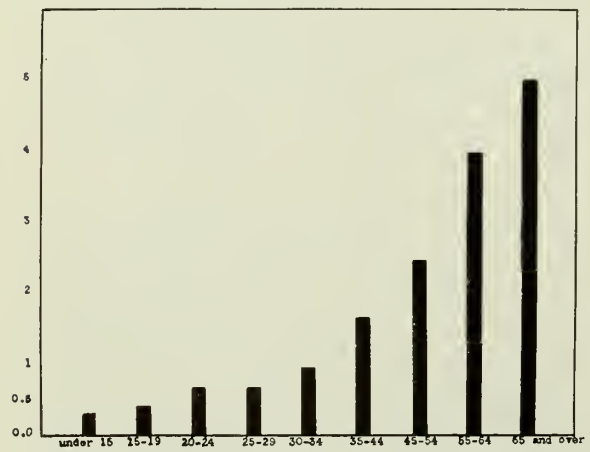


Fig. 2.

In analyzing this basic figure of 1.2 per cent tuberculosis and suspected tuberculosis of the total group served, the most significant finding is in age distribution.

Figure 2 corrects a common misconception concerning the occurrence of disease in the older age groups. Despite the fact that tuberculosis is the first cause of death in the young adult period, tuberculosis does not occur most frequently during that period but becomes increasingly frequent with increased age.

The rate of tuberculosis and suspected tuberculosis among males equals 1.4 per cent, and the rate of tuberculosis and suspected tuberculosis among females equals 1.0 per cent.

In the third division of the 347 cases of tuberculosis diagnosed by large roentgen ray, 46 per cent were minimal, 36 per cent moderately advanced and only 9 per cent far advanced, and in 9 per cent the stage was not reported. The United States Public Health Service figure shows an even greater spread of 69 per cent minimal and 5 per cent far advanced.

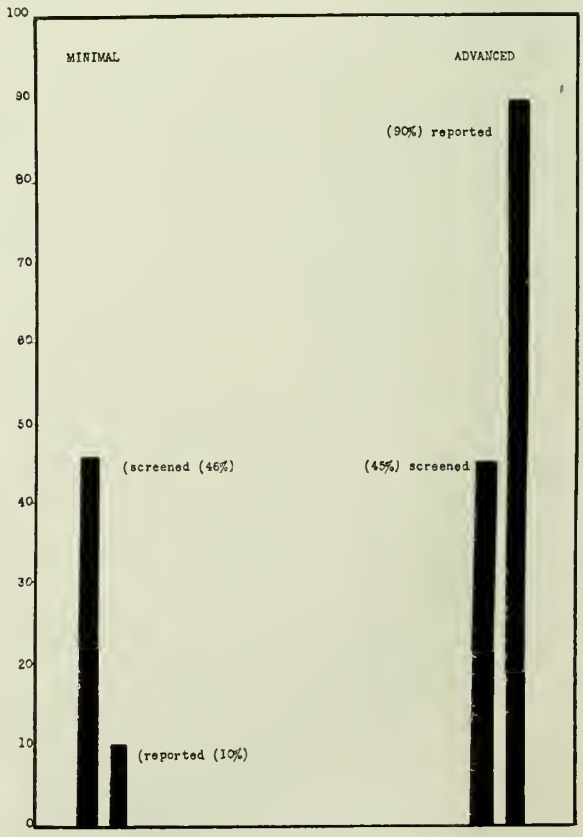


Fig. 3.

This reversal from the usual minimal and advanced rates of reported tuberculosis is the evidence that such screening is worth while. It is a long step toward early diagnosis, the keystone of prevention and control of tuberculosis.

To this point there can be no question as to the value and soundness of a screening program. In the fourth division of follow-up there is no such satisfactory data to report. Of the eighty-one County residents considered by roentgen ray evidence of qualified tuberculosis specialists as having tuberculosis, after twelve months had elapsed 7 per cent were clinically diagnosed by the clinic or their family physician and were placed in sanatoria; 4 per cent were clinically diagnosed and treated at home; 69 per cent were recorded by their family physician (osteopath, chiropractor or M.D.) as not having tuberculosis and of 20 per cent no report could be obtained.

There is only one explanation of this totally unsatisfactory aspect of the screening program. There is no doubt that a certain percentage of healed, arrested or quiescent tuberculosis should normally be expected among this suspect group. It is equally obvious that 89 per cent of tuberculosis diagnosed by roentgen ray at the hands of competent specialists should have a much higher clinical corroboration, and that the continued ignoring of early tuberculosis found by the screening roentgen ray method by practitioners of the healing arts can lead only to the continued high incidence of reported tuberculosis in the far advanced stage of the disease. It is a tragedy that cases found by roentgen ray in the hands of competent specialists should be permitted to be neglected and mishandled by persons unprepared to exercise the great skill needed in handling this type of case.

In this respect it is well to recognize the intelligent attack upon this problem that has been initiated by the St. Louis County Medical Society in its action on June 12, 1946, in recommending consultation with qualified chest specialists on all cases referred to family physicians through the screening process. With intelligent administration of this policy, the following case histories illustrate what can be done or what should be avoided in the early diagnosis and control of tuberculosis following mass screening projects.

The first case illustrates the unfortunate usual story of a person with minimal tuberculosis who has been negligent in following good medical advice or who received poor medical advice that "nothing was the matter and to forget it." It represents, in this study, the 89 per cent who were fairly warned by means of the screening test that tuberculosis was suspected.

REPORT OF CASE

Case 1. Mr. M, white, male, aged 31 years, on October 26, 1944, was first noted to have minimal tuberculosis by small roentgen ray films made at his place of employment and was referred to a chest specialist. A physical examination was essentially normal. Fluoroscope was negative except for haziness of the left apex and the flat film (figure 4A) showed an area of fibrosis in the first interspace on the right side and in the apex on the left. This was diagnosed as a minimal tuberculosis. The patient was advised to report at six month intervals for repeated roentgen rays and observation.



Fig. 4.

The patient did not report for examination for eighteen months. On May 29, 1945, he admitted no special complaints but on physical examination dulness was noted in both apices which extended to the bases. There was no moisture. Fluoroscopic and roentgen ray examinations (figure 4B) showed definite extension of the lesion in both apices but most especially on the right. There was also beginning cavitation on the right. This was diagnosed as active pulmonary tuberculosis which had progressed beyond the minimal stage. Sanatorium care was advised immediately.

The second case illustrates that continued supervision, even in the face of apparent healing, is necessary if the earliest lesions and breakdown in the minimal stage are to be found and arrested.

Case 2. Mr. S., white, male, aged 35 years, was rejected by Selective Service on March 30, 1944. He was told at that time that he had a minimal tuberculous lesion discovered by small roentgen ray which should be observed.

On April 14, he reported to his private physician who assured him that "he had nothing to worry about" and advised him to "forget the whole matter." Although this man had no complaints or symptoms he was not satisfied with his own physician's opinion and sought advice of a chest specialist immediately. This physical examination was normal except that the man was noted to be markedly underweight and claimed to have a "cigarette cough." Fluoroscopic examination was negative. A flat film of the chest (figure 5A) showed minimal tuberculosis, the activity of which was questionable.

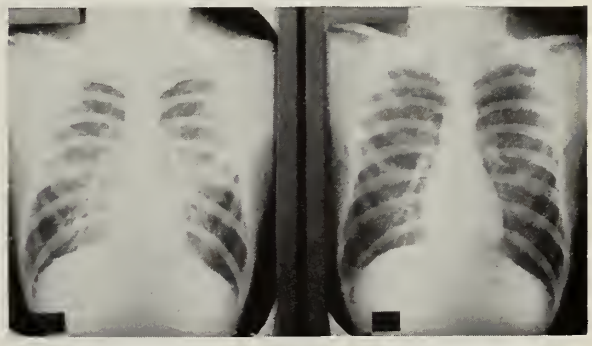


Fig. 5.

On June 28, six weeks later, and on August 26, two months later, he again was seen and no changes were noted.

On January 26, 1945, five months later, the patient complained of feeling tired. Physical examination was normal and the diagnosis remained minimal tuberculosis, no activity noted.



Fig. 6.

On July 30, 1945, six months later, his physical condition was unchanged and he stated that he felt better. A flat film showed the exudative lesion on the right side smaller and more fibrotic. Diagnosis was minimal tuberculosis, apparently not active and apparently improved, despite which the patient was advised to return in six months, which he did (figure 5B).

On January 10, 1946, he complained of feeling tired and exhausted. He quit work. A flat film showed infiltration in the region of the vertebral trunk not seen on the first film. He was put on partial bed rest at home and was checked in one month (figure 6).

On February 15, fluoroscopic examination showed the shadow to be linear in character. He was advised to stay on partial bed rest for another month.

On March 18, there was no essential change. The patient had gained 4 pounds.

On April 11, a flat film showed further clearing of the lesion on the right side. It was felt that the condition had been active when the patient was put on bed rest and he was advised to stay on bed rest for three more months (figure 7A).

By June 13, the patient had gained 9 pounds. Physical examination was normal. Fluoroscopic examination showed old shadows and the chest film showed still further clearing of the lesion on the right side (figure 7B).



Fig. 7.

The third case illustrates the constant supervision that good medical care demands even in the face of continued negative findings.

Case 3. Mr. J. S., white, male, aged 37 years, was rejected by Selective Service in November 1943. He was told that he had a minimal tuberculous lesion which was probably inactive. He placed himself immediately under medical care and on physical examination there were inconstant clicks in the left suprescapular region. Tuberculin patch test was strongly positive. Sputum was negative and there were no other signs of tuberculosis. On the basis of the findings and film (figure 8A) the diagnosis was minimal tuberculosis, activity questionable. He was advised to return for periodic examinations.

On March 31, 1944, he was reexamined. Physical examination was normal. Roentgen ray showed fibroses and some clearing in the contraction of the lesion. He was advised to continue his normal life and return in six months.

In September 1944 his physical examination was normal. Sedimentation rate was 16 mm. He was advised to return in one year.

He was seen in September 1945 at which time he had a severe upper respiratory infection. Fluoroscopy showed no unusual change. The roentgen ray showed that the apical lesion had practically disappeared.

On May 25, 1946, the patient was seen again at which time physical examination was still normal and the roentgen ray (figure 8B) showed further clearing of both sides. He was told to continue to report at yearly intervals unless symptoms developed.

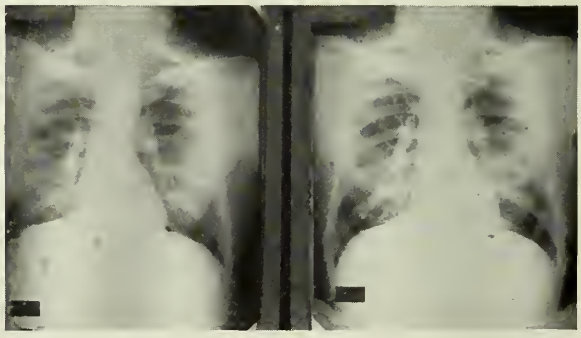


Fig. 8.

It is always fair to ask the cost of any product or service. The sixteen active cases found among city and county residents as the result of the first year of screening activity have been estimated to have cost $605.22 per case. This emphasizes what has been called the "exorbitant cost" if the net results can be measured only in those cases found to be clinically active by the practitioners and hospitalized. If, however, one considers the 211 cases diagnosed as pulmonary tuberculosis and the 75 cases with lesions suspicious of pulmonary tuberculosis found by the large roentgen ray in competent hands and, if one considers that these 286 people should hereafter be followed carefully for a period of years by their family physician to check and prevent early breakdown, the cost per individual fairly warned of the danger of actual or pending tuberculosis breakdown equals $33.00. If

one considers the value of the negative finding to the individuals screened, one arrives at a figure of .35½ cents per person screened. If one considers only the sixteen clinically active cases found, if some of these represent lives saved, productive citizenship maintained, or years of expensive hospitalization averted, one scarcely can claim that even $600.00 is an exorbitant price to pay. The shortened period of hospitalization in any one of these cases alone might well save the taxpayers more than the total cost of the project.

SUMMARY AND CONCLUSIONS

1. Tuberculosis remains one of the major communicable diseases that can and should be controlled by combined community effort of private physicians, hospitals, voluntary health agencies and official health departments.

2. Case finding is the first and most important step in the control of tuberculosis. Despite inadequate hospitalization, most cases if discovered in the earlier minimal stages can be treated at home with benefit to the patient and protection to the family and the community.

3. Mass radiography by the photofluorographic method is today the most effective and practical procedure in case finding.

4. By such screening procedures almost ten times the amount of reported tuberculosis can be shown to exist in any community.

5. The majority of tuberculosis found by the screening method is diagnosed in the minimal stage of the disease.

6. The cost of the procedure is not exorbitant.

7. The weakness of the screening programs lies in the lack of adequate follow-up by the family physician and other members of the healing arts.

8. By regular three to six month check-ups by tuberculosis specialists of those found by roentgen ray evidence to have tuberculosis, one can find early clinical tuberculosis, prevent breakdown and advanced disease that is so destructive to life and infectious to the family and community.

St. Louis County Health Department.

COMPENSATION IN ONE TRAUMA CANCER

M. G. SEELIG, M.D.
ST. LOUIS

Although the medical literature devoted to the subject of the development of cancer after the infliction of a single trauma is fairly bulky, one searches through it in vain for any discussion correlating the legal and medical principles involved. The filling in of this gap extends the discussion from the field of pure scientific reasoning into the realm of the law which, according to the late Justice Oliver Wendell Holmes, is derived primarily not from logic but from experience. Since the passage of compensation laws, it has become almost imperative that some common ground of understanding be established between legal counsel, medical experts and judicial officers. Therefore, I shall examine the problems involved in interpreting the law and then attempt to clarify the purely medical aspects of the topic of one trauma cancer.

That one should do this seems to be all the more indicated because of the various conflicting opinions that have developed as the result of the differing languages spoken by the law and by medicine. The one sets up rules of procedures, the other digs for facts in nature; the one speaks the language of the forum, the other that of the laboratory and the bedside; the one thrives on logical argumentation, the other on physical investigation. How natural, therefore, that, without clarification of some sort, there should result such a diversion of opinion that, often the medical expert scarcely knows how to present or apply his facts and that the legal expert is at an equal loss to interpret them for the jury. One may say, at this point, that we are dealing here with honest doctors and lawyers, of whom there are so many in the world that one may furnish very short shrift to the author of the recently expressed opinion regarding members of the medical and legal professions who "seem to be quite willing to testify to anything for a fee."

If one is to deal with the idea of compensation for the cancer victim of trauma, it is imperative that one familiarize himself with those concepts of the law which underlie the bestowal or the withholding of compensation. This is not a simple task, as anyone may discover by plowing through court proceedings. Indeed, for one like myself, who is necessarily unfamiliar with the law and to whom the principles of law fail to furnish that sense of personal warmth which is necessary for complete understanding, it is helpful to sit at the feet of philosophers and students of the law and learn by word of mouth just what is what. This I have done; and what is here next set down derives from just such a process. Chiefly am I indebted to my lawyer friend, Mr. Orville Richardson.

The same basic rules of law apply in determining the compensability of cancer and other tumors following trauma as prevail in all other cases in which damages or compensation are claimed for an alleged causal relation between trauma and disease. The issues arise and are determined before administrative tribunals such as Workmen's Compensation Commissions and other fact-finding bodies such as juries. Those rules of law applied to the evidence in hundreds of cases of alleged occupational or traumatic cancer in every State of the Union have resulted in a large number of awards and verdicts in favor of the injured person, and have been affirmed on appeal. In a large number

Director of Pathology, Barnard Free Skin and Cancer Hospital; Professor of Clinical Surgery, Washington University School of Medicine, St. Louis.

Read before the Section of Medical Sciences of the American Association for the advancement of Science, St. Louis, March 27, 1946.

of cases, the same rules of law applied to similar evidence have resulted in a denial of compensation or damages. Every physician called upon to testify in these cases, either as an attending physician or as an expert, should be familiar with: first, the general rules of law applied to the solution of these claims and, second, the fundamental criteria or postulates which medical science has erected to establish either the existence or nonexistence of a probable relation between trauma and neoplasms. For the purposes of this discussion I shall arbitrarily use the phrase "one trauma" to mean a single injury, usually external in origin, and mechanical, thermal, electrical or chemical in nature. The word "cancer" includes malignant tumors of all kinds.

Ultimate issues of fact are decided by the jury or commission and not by witnesses, experts or judges. The expert witness may not even testify as to his conclusion upon any ultimate fact in issue, such as whether one of the parties was negligent or how much damages should be awarded. The ultimate issue must be decided by the fact-finding body. However, an important exception permits a qualified expert to testify to certain conclusions such as his opinions concerning the causal relation between trauma and a disease.

No witness is permitted or expected to testify concerning the credibility of any other witness. Therefore, in expressing an opinion concerning the causal relation between trauma and a disease, the doctor cannot and should not attempt to testify to anything but facts within his own knowledge. He should qualify his opinion, when the circumstances require it, by a cautious statement that it is predicated upon an assumption of the truth of those facts of which he has no knowledge except by hearsay, history or assumption.

The jury or compensation commissioner is the sole judge of the credibility of all of the witnesses and the weight to be given to their testimony. However, in most states the judge at a jury trial may grant a new trial if he believes that the verdict is against the greater weight of the evidence. This right, power and duty of the trial judge does not extend to the appellate court which, except in a very few states, cannot grant a new trial for that reason.

The determination of whether evidence is substantial enough to support a finding by, or to warrant its submission, to the jury or commission is a question of law, and not a question of fact, which the Court, at trial and on appeal, must pass upon. If the proponent of a controversial fact introduces substantial evidence in proof thereof, then that issue becomes one for the fact-finding tribunal to decide and cannot be ruled as a matter of law. Evidence is substantial if it has sufficient weight to lead reasonable minds to find and believe with reasonable certainty the fact sought to be proved. Evidence is not substantial if the ultimate fact can be found only by resort to conjecture, surmise, guess or speculation. Thus, if evidence discloses no more than a possibility that the fact is true, then the evidence is not substantial. For example, testimony that a given trauma "could," "might," "may have" or "possibly did" produce a disease is not alone sufficient to establish the causal relation. So, also, if there is evidence that a disease "could" or "might" have been caused by a given trauma and "could" or "might" have resulted from other causes, then, other evidence being absent, the proponent of the theory of trauma as the cause has not sustained his burden of proof. On the other hand, the mere possibility that a disease might not have been caused by trauma does not nullify the expert's opinion that trauma did cause it, nor will such a bare possibility destroy other evidence which, when taken together, is substantial enough to establish the fact with reasonable certainty. There is a conflict of authority among courts whether an opinion that a given trauma probably caused a disease is substantial evidence standing alone. Most courts hold that it is.

There is, however, an important corollary to these rules just stated: Testimony that a given trauma "may," "might," "could" or "possibly did" cause a disease, though insufficient by itself to prove a causal relationship, is admissible in evidence; and if it is supplemented by other evidence, so that all taken together is substantial, then the proponent of the controversial fact has sustained his burden of proof so far as the court is concerned. The question then becomes one lying solely within the province of the jury or commissioner to decide.

In many reported opinions of appellate courts, it has been ruled that medical opinion favoring the relationship between trauma and cancer may be supported by one or more in a series of facts which, taken together with the expert's testimony that a causal relationship is possible, constitute substantial evidence of that relationship. Such facts, gathered from court opinions are as follows:

1. The external tissues were apparently "normal" and "healthy" before the trauma; or, if the cancer was internal, the victim presented no symptoms of the disease, subjectively or objectively, before the trauma.

2. The trauma occurred at the site of the subsequently discovered cancer and was immediately attended with subjective and objective evidence of substantial injury.

3. Such symptoms continued until a cancer was discovered.

4. The cancer appeared within a time after the injury consistent with the known life history of such a cancer.

5. The cancer was of a type such as might be expected to result from such an injury.

6. There was no other known cause for the development of the cancer at that particular place.

The courts have not held that it is necessary to prove all of these above mentioned facts.

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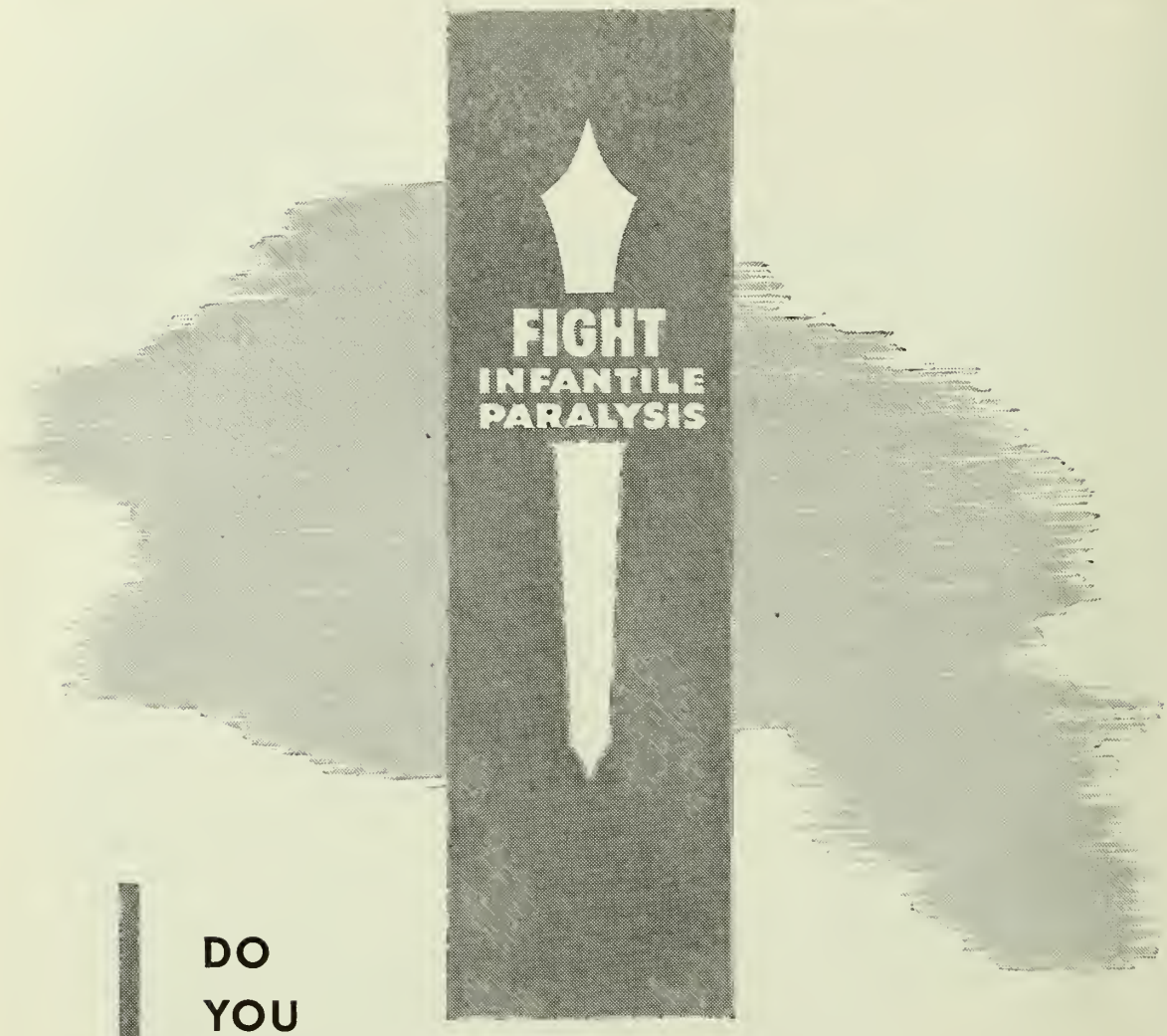
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celerates, precipitates or activates a disease, then, under the law, that agency is one of the proximate causes of all disability suffered during the subsequent course of the disease. No compensation is allowed unless the normal course of the disease is substantially altered. If death from disease is substantially hastened by trauma, the agency or individual responsible therefor becomes fully liable for the death. There are virtually no rules of law by which juries or compensation commissions are permitted to apportion damages or disability between disease and trauma, but, as a practical matter, the existence of a preexisting disease or condition, aggravated by trauma, occasionally is considered in mitigation of damages assessed to the person responsible for the trauma.

It clearly seems to be apparent that much of the confusion incident to all discussions of the relationship between a single injury and the subsequent development of cancer resides in the abstract principle of causality. It is, on the very face of it, disconcerting to realize that although scientists do not know the cause of cancer, they, nevertheless are asked for an opinion as to whether, in a given case, it was or was not caused by a previous trauma. Indeed, it is quite possible that legal and medical experts may finally so torture the subject of causality that we shall eventually reach the conclusion of the metaphysical philosopher David Hume, who, denying the principle of causality completely, proved that it was not possible to find anywhere or at any time, throughout nature, evidence of effect resultant from any supposed cause.

For myself, the problem sets itself up as follows: A single injury has been sustained; a cancer follows, in proper time, at the site of this injury. Is there any relationship between these circumstances from which one may logically assume that, in the given case, the trauma was a factor in the subsequent development of the cancer? I studiously try to avoid the pitfall of causality just as I zealously champion the probability of one trauma occasionally inciting tissues to take on abnormal growth. I have found nowhere in literature a satisfactory refutation of the theory that oft repeated, chronic irritation may end in tumor formation. Moreover, there seems to be little doubt but that malignant melanomatous tumors do develop after a single injury to a pigmented mole.

Primarily, I rest my conviction on personal clinical experiences such as the following: A patient was struck violently on the breast by her husband. I examined her two hours after the accident and found nothing but hemorrhage into the skin and subcutaneous tissue. Twenty-four hours later there was a localized, hen's egg size blood clot in the substance of the breast at the site of the blow. This hematoma never resolved completely. It continued painful and in five months became hard to the point of arousing suspicion which, in turn, led to removal of tissue for purposes of biopsy and the consequent disclosure of cancer of the breast. I happened to have examined this patient's breast about four months before she was injured, at which time, I found nothing pathologic. Another case: I see a man who sprained his ankle while at work. An immediate roentgen ray picture disclosed normal bone and joint structures. The swelling continued and increased until the clinical diagnosis of sarcoma became almost certain. Pulmonary metastases furnished final assurance, and autopsy confirmed the diagnosis. Another case: A man struck his shin violently against a steam pipe. Immediate physical examination disclosed a hematoma. Roentgen ray examination revealed normal bone structure. The swelling and pain failed to subside and in the course of a few months an osteosarcoma, developing at the site of injury, led to death. Another case: An intelligent man reported that a cancer of the lip developed after a razor cut. Previous to this cut the patient was certain that the lip was not the site of even a skin blemish. The diagnosis of cancer was confirmed by microscopic examination.

I might multiply these personal experiences by the recital of additional case histories, were it not that time will not permit. The argument need not be belabored unduly in order to make the simple point that, my experience being what it is and resting as it does on cases such as those cited; and the present state of basic knowledge of cancer being in the incomplete status that it is, I could not bludgeon my brain, even if I would, into reasoning that in these four patients the cancers were caused specifically by trauma, but by these same tokens I would feel inclined to dispense entirely with a brain that led me into reasoning that the traumata were not factors in some way responsible for the subsequent development of the cancers.

Moving on from the field of personal experience into the realm of medical literature, what does one find? In the first place, one encounters a formidable bulky accumulation of material contributed by a large number of investigators, in the form of papers, brochures and books. In the second place one finds that, in this mass of data, there is a marked preponderance of opinion against the theory that a single trauma may be made responsible for the subsequent development of cancer. It is not possible within the scope of this paper to summarize the evidence pro and con; but it is revealing to note that practically all of the investigators consider trauma from the standard of causality. In so doing they cloud the issue because, as has already been pointed out, in the present state of knowledge, causality and cancer do not mix.

It is no less revealing to note in the mass of accumulated literature on trauma and cancer that the almost obstinate refusal to admit a cancer-evocative factor in trauma leads to patent and almost humorous contradictions. Let me enumerate a few of them. I shall take for the text the most comprehensive critique that has yet been published, Leila Charlton Knox's chapter on "Trauma and Cancer"

in Brahdy and Kahn's book, "Trauma and Disease." Knox, confusingly quotes Lewy as saying "Trauma per se is never the primary cause for the development of any type of cancer" and yet only a few lines further on Lewy is quoted as admitting that under certain conditions a single trauma must be regarded as the important factor in the development of cancer. Knox, who is an avowed skeptic regarding any relationship between cancer and a single trauma, nevertheless quotes with approval a statement by the pathologist Ribbert that "between a given tumor and a previous trauma, the possibility of some relationship may exist." Mock and Ellis are quoted as never having found any evidence of posttraumatic malignancy and yet they draw up a set of postulates, on which "from a purely medical standpoint," one may be justified in basing a relationship between trauma and cancer. Knox quotes Ewing and others as making the categorical statement that a single trauma is incapable of causing cancer; and yet Ewing in the last edition of his book, "Neoplastic Diseases," says that though they may be few in number, there are well attested incidences of "traumatic" tumors; and he furthermore sets down the strict criteria (as developed by Segond, Thiem and Lubarsch) by which such cases should be judged. The criteria correspond most closely to those I have already set down as acceptable to our courts. One might continue, at length, pointing out similar discrepancies in the literature.

The whole problem sums itself up in my own mind, about this way: In my own experience I have seen enough to know that, in properly selected instances, few in number 'tis true, the conclusion is unavoidable that one trauma seems to evoke a subsequent cancer. In the literature there are a sufficient number of contradictory statements to prompt one to doubt the dictum that no relationship exists between the infliction of a single trauma and the subsequent development of cancer at the site of injury. In our laboratory Simpson and Cramer found that in mice subjected to constitutional change, a single thermal trauma was followed by cancer at the site of injury in one third of the experimental animals.

It is possible that the proponents and the opponents are saying the same thing with just enough variation in the semantic expression of it to confuse courts and juries. Time will prove, I think, that all shall eventually occupy a common ground in reasoning toward the same conclusion that trauma may provoke, evoke or incite the growth of cancer, in a fashion that is not now understood; that this happens rarely; that the predication of such a sequence of events must rest on the strict set of criteria that scientists have already established and that courts have signified a willingness to accept and finally that denial of any possible relationship between trauma and cancer may work grave injustice, on occasions, to a worthy claimant.

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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 1, January, 1947.

THE IMPORTANCE OF POSTSANATORIUM CARE OF THE TUBERCULOUS

Pulmonary tuberculosis is a disease of uncertainty, with periods of quiescence and of reactivation. While many individuals recover spontaneously, in others the disease may progress notwithstanding all manner of treatment. For many, recovery depends upon the knowledge and the facilities for properly adjusting the mode of life to the disease. This adjustment is best carried out under the watchful eye of the physician.

One of the great dangers to the individual with tuberculosis is that the disease may advance considerably without the patient's being aware of it. For this reason it is essential that the pulmonary condition be observed periodically by means of properly taken X-ray films.

The education of the patient is one of the principal aims of sanatorium care. The knowledge of the disease, the reasons for making adjustments in living, working and in environment, the patient's part in recovery and its maintenance, all furnish the background for his care after leaving the sanatorium. Even after discharge, his disease is still a serious potential danger to himself and to his associates.

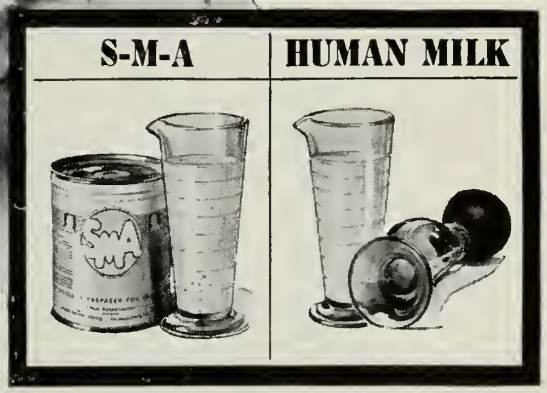
Early in sanatorium treatment, if it is possible, it must be determined to what extent the patient will be able to return to his former work and life. If he cannot assume the so-called "normal life," efforts should be made to fit him for work suitable to his condition. Recreational therapy, occupational therapy, rehabilitation and the establishment of work tolerance should go hand in hand with the general treatment. Ideally the sanatorium should conduct its physically able patients through all the stages of rehabilitation until a work tolerance of eight hours has been reached. Others should be brought to their maximum work tolerance and be put on part-time work.

The two most satisfactory guides for determining the patient's condition are the X-ray film and the patient's temperature. Of these, serial X-ray films tell us more completely the dynamic state of the disease. When the X-ray films show marked changes for better or worse, the disease is active, retrogressively or progressively, and rest in bed is indicated. Such is the case, too, when elevation of temperature not due to other causes is present or there is loss of weight, loss of appetite, or fatigue. To determine the status of the disease, the patient should take his temperature and pulse at about 4:00 p.m. and 8:00 p.m., and keep a record of it as well as of any toxic symptoms. At least once in six weeks he should have an X-ray exami-

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by IRVING J. TREIGER, M.D., Clinical Assistant Professor of Medicine, University of Illinois, Chicago. 238 illustrations including 11 in color, on 69 plates. 174 pages. In Preparation.

UTEROTUBAL INSUFFLATION

The clinical viewpoint is stressed and maintained in this new book. The data, gathered over a twenty-five year period, is very complete. Much hitherto unpublished material is presented, and more extensive description of the procedure is given. Case histories are presented, and indications and contraindications discussed fully.

by I. C. RUBIN, M.D., F.A.C.S., Clinical Professor of Gynecology, College of Physicians and Surgeons, Columbia University, New York. 522 pages, 159 illustrations including 6 in color. In Preparation.

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nation of his chest. In old chronic disease the interval may be lengthened. With such a record the physician is in a position to judge the reaction of the patient to his disease and to modify treatment as needed.

Each patient is an individual and requires individual treatment. As a general rule, after the X-ray films have revealed a practically stationary lesion for several months, and there are no toxic symptoms, the patient may become partly ambulatory. Attention should be paid to the state of his nutrition, and he should avoid overheated stuffy rooms at all times.

Life in a sanatorium is much less exacting than life at home. To have attained an arrest of the disease in the sanatorium does not mean that the arrest will continue under adverse environmental and nutritional conditions outside.

Essentially, tuberculosis is a chronic disease; in such a disease education in how to live with it and remain well is of extreme importance. Continuous readjustments should be made by a physician who knows the picture as a whole. To be successful, the treatment of tuberculosis must go on long after discharge from the sanatorium.

What the sanatorium does or can do for a patient is briefly outlined because postsanatorium care and complete rehabilitation are but an extension of the santorium activities. Vigilance should be the keynote of his extended period, vigilance on the part of the patient and on the part of his physician.

One can give no fixed procedure for subsequent observations of the discharged sanatorium patient. For those whose disease is arrested an X-ray examination every six months for two years probably would be sufficient, providing the patient feels well and has no symptoms. Those discharged as apparently arrested probably should have X-ray examinations every three months for one year and after that at longer intervals if all goes well. At the time the X-ray examination is made there should be a consultation with the tuberculosis physician during which advisable adjustments in the routine of the patient may be recommended.

For many years the Trudeau Sanatorium has made an effort to find out what happens to its discharged patients. Once each year, in the anniversary month of his discharge, the patient is sent a blank to fill in. In addition to a request for notice of change in address the patient is asked about his health in detail, his work and his earning capacity. This inquiry reminds the patient of the importance of a check-up of his condition. Replies are received from about 90 per cent of former patients.

In this institution the sanatorium staff is always glad to advise the patient when requested and they welcome opportunities to cooperate with outside physicians. The staff gladly examines the patient's chest films at the request of his physician and he is told that he may return to the sanatorium at any time for a check-up. Such a check-up affords an opportunity for the attending physician to utilize the specialized services of the sanatorium staff which is more important if he is not specially trained in tuberculosis. It is the essence of teamwork that the physician attending the patient be kept fully informed about the findings and recommendations of the sanatorium staff.

The treatment of tuberculosis should be carried on over many years, even if there has been an apparent restoration of health. A knowledge of tuberculosis and its many and varied behaviors is needed by him who would carry out such treatment with skill. It must be recognized that in all cases the X-ray gives the most accurate estimate of what is going on in the lungs. The sanatorium lays the preliminary groundwork in education and provides satisfactory environmental and nutritional standards, but the treatment must go on long after the patient has been discharged. Prevention of relapse is of greater importance than treatment after relapse has occurred.

The Importance of Postsanatorium Care of the Tuberculous, Fred H. Heise, M.D., American Review of Tuberculosis, October-November, 1946.

BOOK REVIEW

DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS, THE. By Moses J. Stone, M.D., Assistant Professor in Medicine, Boston University School of Medicine; Instructor in Medicine, Tufts Medical School; Physician-in-Chief, Chest Clinics, Beth Israel Hospital and Massachusetts Memorial Hospitals, Boston, and Paul Dufault, M.D., F.A.C.P., Superintendent of the Rutland State Sanatorium, Rutland, Massachusetts. With a foreword by Henry D. Chadwick, M.D. Illustrated with 93 engravings. Lea & Febiger, Philadelphia, 1946 Price $3.50.

Who practices medicine should know, above all the ailments of the human body, tuberculosis; and this knowledge must, because of the speed of movement, be brought to the very present. The tremendous advancement in the last ten to twenty years in the early recognition of the infection and in the radical measures taken for its cure, has far outstripped the practitioner's keeping-up on the subject.

In no disease is early diagnosis so imperative and, by the same token, in no disease is the refusal to face the possibility of its presence or the lack of determination to at once institute radical curative treatment so calamitous to the individual and to the community.

"Take an X-ray" has been shouted from every medical housetop. Yet the thousands of thoracoplasties performed yearly throughout the country are concrete evidence of the failure to institute the proper treatment at a time when bed-rest or a simple pneumothorax would have cured the patient.

This little book by Stone and Dufault is called to the attention of all medical doctors who challenge the disknowledge of the kingshighway the study of tuberculosis has been travelling the last twenty years. The reader can feel assured he is getting a summary of the best thought in the country on the present status of the handling of tuberculosis.

Of only 325 pages, it makes clear, lucid, and even delightful reading. L. S.



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JANUARY, 1947

EDITORIALS

THE LIFE SPAN OF THE PRESIDENTS

Only twelve of the thirty deceased Presidents of the United States outlived their expectation of life at inauguration, a study made by the Metropolitan Life Insurance Company shows. The long lived executives were, for the most part, in the earlier period of the country's history. Of the first ten Presidents, eight lived beyond their inauguration for more years than would have been expected on the basis of mortality conditions then prevailing, the two exceptions being George Washington and William H. Harrison.

Since 1900 only William Howard Taft survived his expectation of life at inauguration. Herbert Hoover, the only living ex-President, has practically reached the mark, while President Truman has many years to live before attaining the expectation of life reckoned from his inauguration.

The Presidents are, with few exceptions, well in or past midlife by the time they enter the presidency. The youngest was Theodore Roosevelt who was only 42 years of age at inauguration. Five were between 45 and 49 years of age; eleven between 50 and 54; nine between 55 and 59; four between 60 and 64, and only two were more than 65. The oldest, William Henry Harrison, died one month after taking office at the age of 68. Except for President Truman, none of the Presidents since Buchanan had passed his sixtieth birthday before inauguration. In contrast to an average age of 58⅓ years at inauguration for those taking office before 1850, the succeeding incumbents averaged 52 years.

The physical and mental strains in rendering executive decisions in a highly industrialized nation of 140,000,000 people undoubtedly exceed the burdens that were imposed by an essentially agricultural economy of a few million persons. In order to ascertain whether the added burdens of the later Presidents have affected their length of life, the Metropolitan Life Insurance Company made a comparison of their expectations at inauguration with the years of life actually lived from that date to death. This comparison excludes William Henry Harrison who served only one month, and Presidents Lincoln, Garfield and McKinley, all of whom



were assassinated. On this basis it was found that the Presidents who took office before 1850 outlived their expectation of life at inauguration by an average of 2.9 years. However, the Presidents who served from 1850 to 1900 fell short of their expectation of life at time of inauguration by an average of 2.9 years. The deficiency is increased to about six years if the three Presidents who were assassinated are included in the computations for that half century.

The Presidents who have held office during the present century have made even a poorer record, their length of life after inauguration being on the average eight years less than their expectation of life at the time of taking office. Even with allowance made for the exclusion of Herbert Hoover from this group, the difference is still appreciable.

The survey points out that it can scarcely be inferred from these figures alone that the presidency now takes years of life from the incumbents. Other facts may influence, such as the burdens of public services before taking office. It was found true, however, that unsuccessful candidates for the presidency have fared much better, on the whole, with respect to longevity than have those who were elected to the presidency.

REVIEWS HEALTH AND WELFARE TERMS IN CONTRACTS

"The growing interdependence between industrial medicine, community medical services and public health administration was never more clearly demonstrated than in the negotiations resulting in the National Bituminous Coal Mines Wage Agreement," according to an editorial in the November 30 issue of *The Journal of the American Medical Association.*

"The terms of this contract between the mine workers and the government acting as operator of the soft coal mines are well known," the editorial says. "They range from long overdue revision of safety codes and workmen's compensation benefits to direct participation by the union in the administration of funds for medical and hospital care and for general welfare. The medical profession seems to be sympathetic to all bona fide efforts to improve working and living conditions. The Council on Industrial Health, the Board of Trustees and the House of Delegates of the American Medical Association have approved the general policy of cooperative industrial health planning by management, labor and medicine, provided scientific and ethical standards are maintained.

"The results of the comprehensive survey and study of the hospital and medical facilities, medical treatment, sanitary and housing conditions in the bituminous coal areas are indicative of the needs. The purpose is to raise the level of these facilities to recognized American standards. The survey teams supplied by the Bureau of Medicine and Surgery of the U. S. Navy will present an objective report. Past investigations of the coal mine

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areas, and no doubt the present one, call attention to the shortcomings of contract practice, the advantages and disadvantages of industrywide medical and hospital care plans, the need for greatly expanded medical supervision over the physical status of workers and their working environment, the shortages in medical personnel and hospital facilities and the serious deterioration of standards of public health administration in the coal regions.

"In spite of impending legislation, health and welfare are likely to be important factors in future collective bargaining. Labor may ask for greater direct participation not only in industrial medical service but in plans for general medical care. Both the Council in Industrial Health and the Council on Medical Service have been actively concerned with the medical implications in the coal mine wage agreement and the probable extension of similar contracts to other occupational groups. Herein lie many opportunities for constructive medical leadership. The medical profession obviously has great but not complete responsibility for standards of medical care and public health services. Enlightened elements in the community must assume their share of this burden, particularly in adequate local support. As far as the coal mine region is concerned, an early conference representing employers, employees and the medical profession is urgently indicated."

NEWS NOTES

E. C. Bohrer, M.D., West Plains, was the speaker at a meeting of the West Plains Rotary Club on November 11. He spoke on "Highlights in the Development of Medicine."

Frederick F. Bechtold, M.D., and Clyde B. Abbott, M.D., Springfield, have been appointed to the Springfield City Health Department to fill the places resigned by W. Roland Langston, M.D., and R. C. Conrad, M.D., Springfield.

E. R. Motley, M.D., Hannibal, was presented a traveling bag by the Marion-Ralls County Medical Society on October 15, marking twenty-one years in practice and his retiring from practice.

The third annual clinical conference sponsored by the Chicago Medical Society will be held at the Palmer House, Chicago, on March 4, 5, 6 and 7.

A directory of convalescent homes is being prepared by the Committee on Public Health Relations of the New York Academy of Medicine and a questionnaire is going to convalescent homes dealing with requirements for admission, type of patients, therapy, physical plant and the staff. The directory is for the purpose of a dependable guide for physicians who wish to refer patients to institutions for convalescence.

One hundred twenty-two additional civilian consultants to the Secretary of War were appointed recently through the Surgeon General. Among these were William E. Allen, Jr., M.D., St. Louis, in radiology, and S. Richard Silverman, M.D., St. Louis, in otolaryngology. This brings the total of civilian consultants available to the Army Medical Department to 327. The majority of consultants named recently and prior are former officers in the Army Medical Department. Major General Norman T. Kirk, Surgeon General, stated that more consultants will be added so that the American soldier will continue to get the best medical care available both from military and civilian medical men. In addition to making available the best specialists, the Army Medical Department is sending medical officers to civilian medical schools and hospitals for advanced graduate training, schooling enlisted technicians to aid medical scientists and recalling former medical department officers to active duty to insure the well-being of some 70,000 patients in Army hospitals throughout the world.

On December 7, the American Medical Association, in celebration of its centennial in 1947, presented the first in a series of twenty-six N. B. C. dramatized broadcasts on the progress of medicine in the United States during the hundred years of the Association's existence. The series is entitled "Doctors—Then and Now" and the theme is "A Century of Progress by American Medicine." States with similar history and similar general characteristics have been grouped together so that twenty-five regions will be represented. The twenty-sixth broadcast will deal with the one hundred years of the American Medical Association from a nationwide standpoint.

The twentieth annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, on February 9. The program will include discussions in the fields of national affairs, economics and medical education. All physicians are invited to attend and there is no registration fee.

B. Albert Lieberman, Jr., M.D., Kansas City, recently was elected president of the Kansas City Social Hygiene Society.

William F. Culbertson, M.D., Kansas City, has been appointed acting manager of the recently acquired O'Reilly Veterans Administration hospital for tuberculosis patients in Springfield.

DEATHS

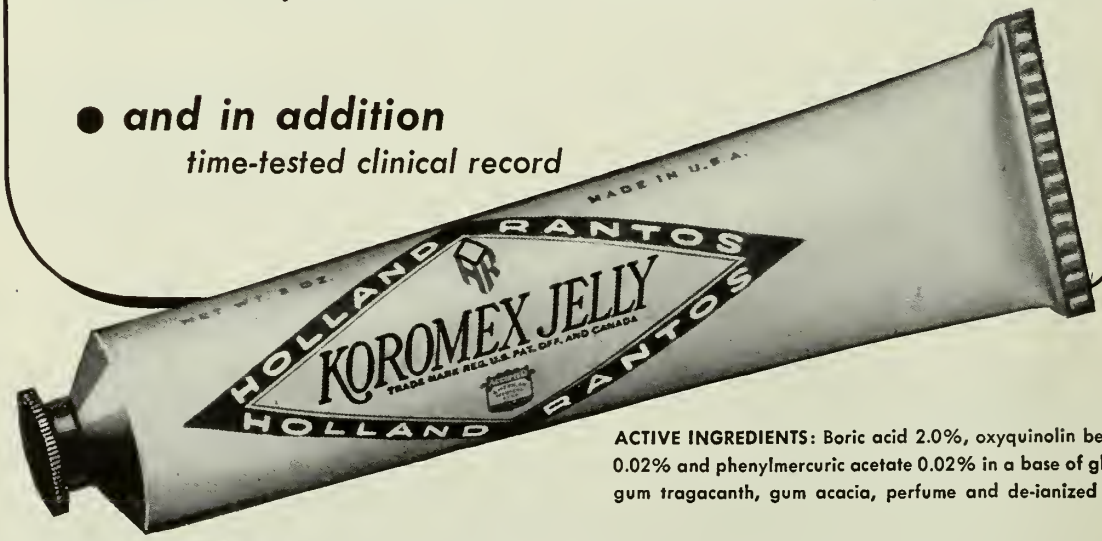
Hemker, William H., M.D., Pacific, a graduate of St. Louis University School of Medicine, 1904; member of the Franklin County Medical Society; Fellow of the American Medical Association; aged 65; died October 7.

Ogilvie, Fred Lee, M.D., Caruthersville, a graduate of St. Louis University School of Medicine, 1906; member

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and former president of the Pemiscot County Medical Society; aged 68; died October 14.

Warren, Wilber Lloyd, M.D., Gilman City, a graduate of Creighton University School of Medicine, 1916; member of the Harrison County Medical Society; Fellow of the American Medical Association; aged 57; died October 29.

Wilkens, John A., M.D., St. Marys, a graduate of St. Louis University School of Medicine, 1905; member and former president of the Ste. Genevieve County Medical Society; Fellow of the American Medical Association; aged 72; died November 12.

Padgett, Earl C., M.D., Kansas City, a graduate of Washington University School of Medicine, 1918; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 53; died December 2.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

H. E. PETERSEN, ST. JOSEPH, COUNCILOR

Grundy-Daviess County Medical Society

A dinner meeting of the Caldwell-Livingston, Carroll, Grundy-Daviess, Linn and Mercer County Medical Societies was held at the Strand Hotel, Chillicothe, on November 26. Thirty physicians attended the meeting which was sponsored by the Grundy-Daviess County Medical Society.

Carl R. Ferris, M.D., Kansas City, gave an excellent talk on "Infantile Paralysis."

Howard B. Goodrich, M.D., Hannibal, President of the Missouri State Medical Association, discussed in detail "The Program of the Missouri State Medical Association."

A. S. Bristow, M.D., Princeton, Past President of the Missouri State Medical Association, spoke briefly on a few of the present problems of rural medical practice.

Mr. Ray McIntyre, Field Secretary of the Missouri State Medical Association, explained the field work with various local medical societies throughout the state.

Another joint meeting of the group is scheduled for January under the sponsorship of the Carroll County Society.

E. A. DUFFY, M.D., Secretary.

SECOND COUNCILOR DISTRICT

W. F. FRANCKA, HANNIBAL, COUNCILOR

Randolph-Monroe County Medical Society

The Randolph Monroe County Medical Society held it monthly meeting at the Merchants Hotel, Moberly, on October 10, with the following present: Drs. G. W. Hawkins, Salisbury; F. A. Barnett and George M. Ragsdale, Paris; R. H. Williams, Robert Young, T. S. Fleming, L. Huber, L. O. Nickell, Henry K. Baker and C. C. Smith, Moberly.

Robert Young, M.D., Moberly, addressed the group on "Vaginitis: Diagnosis and Treatment."

A buffet lunch was served following the meeting.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

Jefferson County Medical Society

The Jefferson County Medical Society met in Crystal City at 8:00 p. m. on November 20, with nine members present.

John Williams, M.D., Jefferson City, Division of Health, and Mr. Ray McIntyre, Field Secretary, Missouri State Medical Association, were guest speakers.

Following a brief business session, Dr. Williams spoke

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From where I sit *by* Joe Marsh

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Folks weren't surprised when Bert Childers won first prize for his corn at the county fair last Fall.

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From where I sit, people like Andy also rate a "First prize." Not just for the quality of the product—but for the "trimmings" too.

Joe Marsh

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on "Rural Hospital Construction and Operation." An interesting round table discussion followed the informative presentation of this subject.

Thomas A. Donnell, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Phelps-Crawford-Dent-Pulaski County Medical Society

The Phelps-Crawford-Dent-Pulaski County Medical Society held its regular monthly meeting in Rolla on November 14 as a joint meeting with the Woman's Auxiliary.

E. C. Bohrer, M.D., Councilor of the Ninth District, presented a charter to the president of the newly formed society, George Joseph, M.D. Dr. Joseph asked that W. H. Breuer, M.D., accept the charter for the society.

Robert Mueller, M.D., St. Louis, chairman of the Association's Committee on Public Relations, was the speaker of the evening.

Mr. Lemoine Skinner, St. Louis, public relations consultant, and Mr. T. R. O'Brien, St. Louis, Executive Secretary, spoke briefly.

R. E. Breuer, M.D., Secretary.

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for January and February, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

January 1: No clinic.
January 3: Gynecologic and Genitourinary.
January 8: Skin.
January 10: Breast.
January 15: Gastrointestinal.
January 17: Cervix.
January 22: Skin.
January 24: Head and Neck.
January 29: Bone and Lymphomas.
January 31: Miscellaneous.
February 5: Miscellaneous.
February 7: Gynecologic and Genitourinary.
February 12: Skin.
February 14: Breast.
February 19: Gastrointestinal.
February 21: Cervix.
February 26: Skin.
February 28: Head and Neck.

RURAL HEALTH CONFERENCE TO BE HELD IN CHICAGO FEBRUARY 7 AND 8

The American Medical Association through its Committee on Rural Medical Service, in cooperation with nationally organized farm groups, is arranging a Second Annual Conference on Rural Health Service to be held at the Palmer House in Chicago, Friday and Saturday, February 7 and 8, 1947.

F. S. Crockett, M.D., chairman of the committee, states that "it is the hope that this meeting will give the farmer and the doctor an opportunity to exchange views regarding many questions which are of vital importance in developing a better health service in rural communities throughout the United States."

Invitations have been sent to over 1300 representatives of farm organizations and leaders in health education which include the superintendents of education in the various states, representatives of state health departments and the deans of medical colleges.

The Friday morning session will begin with registration at 9 a. m., following which Dr. Crockett will discuss the purpose of the conference. George F. Lull, M.D., Secretary and General Manager of the American Medical Association, will welcome the attending groups and then Albert S. Goss, Master of The National Grange, Washington, D. C., will lead a discussion on "The Farmer and the Medical Service Program."

The morning session will include two more discussion groups. One will concern itself with the "Methods of Bringing and Holding Doctors in Rural Areas," with Fred A. Humphrey, M.D., Chairman of the Colorado Committee on Rural Medical Service, Fort Collins, and H. E. Slusher, President of the Missouri Farm Bureau Federation, Jefferson City, as speakers.

The second group, which will concern itself with "Hospital Facilities and Health Centers for Rural Areas," includes: Mrs. Roy C. Weagly, President of The Associated Women of the American Farm Bureau Federation, Hagerstown, Md.; Graham L. Davis, Director of the Division of Hospitals, W. K. Kellogg Foundation, Battle Creek, Michigan, and Member of the Advisory Board of the Federal Hospital Council; Joseph W. Fichter, Master of the Ohio State Grange, Columbus; Robin C. Buerki, M.D., Dean of the Graduate School of Medicine, University of Pennsylvania, Philadelphia, and Member of the Advisory Board of the Federal Hospital Council.

There will be a discussion on the "Voluntary Medical Prepayment Plans as They Apply to Rural Communities" by Mrs. Gladys T. Edwards, Director of Education of the Farmers Educational and Cooperative Union of America, Denver, Colorado, James R. McVay, M.D., Vice Chairman of the Council on Medical Service, American Medical Association, Kansas City, Missouri, and J. S. Jones, Secretary of the Minnesota Farm Bureau Federation, St. Paul.

Friday afternoon will be devoted to round table discussions at A. M. A. headquarters, 535 N. Dearborn, Chicago. The topics are:

"Hospital Facilities and Health Centers"—Allen T. Stewart, M.D., Chairman; Mrs. Roy C. Weagly, Co-chairman.

"Methods of Bringing and Holding Physicians and Dentists in Rural Areas"—J. S. Jones, Chairman; H. B. Mulholland, M.D., Co-chairman.

"Voluntary Medical Prepayment Plans"—James F. Doughty, M.D., Chairman; Mrs. Paul Palmer, Co-chairman.

"Nursing Needs of Rural Communities"—Mrs. Charles W. Sewell, Chairman; Charles W. Holman, Co-chairman.

"Health Council as Agency for Promoting Rural Health"—J. Paul Jones, M.D., Chairman; Joseph W. Fichter, Co-chairman.

"Medical Care for Lower Income Groups"—Ransom E. Aldrich, Chairman; Mrs. Gladys T. Edwards, Co-chairman.

At the conference Saturday morning to be held at the Palmer House, there will be a presentation of the recommendations of the round table committees and general discussions. The two-day meeting will close with a luncheon at which the guest speakers will be: J. Melville Broughton, of Raleigh, N. C.; Harrison Shoulders, M.D., Nashville, Tenn., President, A. M. A., and Olin West, M.D., Nashville, Tenn., President-elect, A. M. A.

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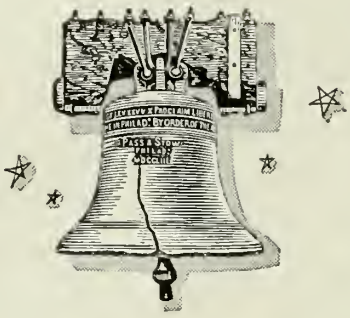
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BOOK REVIEWS

PRINCIPLES OF NEUROLOGICAL SURGERY, THE. By Loyal Davis, M.S., M.D., Ph.D., D.Sc., (Hon.) Professor of Surgery and Chairman of the Division of Surgery, Northwestern University Medical School, Chicago, Illinois. Third Edition, thoroughly revised with 192 engravings, containing 348 illustrations and 5 plates, 4 in color. Lea & Febiger, Philadelphia, 1946. Price $7.50.

In his preface to the 3rd edition, the author says, "The purpose has been to give to the practitioner of medicine and to the medical student easily assimilable facts which will aid them in getting a more accurate concept of neurological surgery to the end that their patients will receive accurate and sound advice."

To this end Davis devotes 542 pages, and unquestionably he who reads will learn. It is doubtful, however, that many practitioners and students will be able to read from cover to cover, for the style is rather ponderous.

Sixty-two pages are devoted to the "Neurological Diagnosis," and this is perhaps the most useful chapter in the book. The remainder of the book is descriptive of the injuries, tumors and anomalies of the nervous system, with some indications as to their treatment. Operative technic is not described, and the ultimate implication is always that a neurosurgeon should be called in. B. S. P.

THE MODERN ATTACK ON TUBERCULOSIS. By Henry D. Chadwick, M.D., former Tuberculosis Controller of the City of Detroit, and Commissioner of Public Health of the Commonwealth of Massachusetts, and Alton S. Pope, M.D., Deputy Commissioner of Public Health and Director of the Division of Tuberculosis, Commonwealth of Massachusetts. Revised Edition. The Commonwealth Fund, New York, 1946. Price $1.00.

To the public and private health officer, and to those more interested in health as it affects the community, this small book affords a tremendous amount of reliable information on the present status of the war on tuberculosis; how successful the past battles have been, and how the future campaign should be conducted. Based on statistical showing of the last forty years the authors look to the eradication of tuberculosis by the year 2000.

There is also considerable of value to the private practitioner in these pages; things which he did not know and things upon which his information was incorrect, as, "Examination and Follow-Up of Contacts," especially in the younger age groups. This information is laid out concisely and positively with the discarding of much of the nonsense previously current.

The book's 123 pages are clearly written and well indexed. L. S.

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WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

PRESIDENT'S MESSAGE

It was a privilege for Mrs. W. L. Allee and me to attend the conference of the presidents and presidents-elect of the various state auxiliaries held at the Continental Hotel in Chicago December 11 and 12. We enjoyed the reports of the presidents as well as the informal discussion of problems as we gathered in smaller groups.

The National Auxiliary is growing. We now have 28,569 members, including 764 members at large, which is an increase of 3,224 over last year.

Mrs. Eustace Allen, president-elect of the Women's Auxiliary to the American Medical Association, proved her loyalty to the auxiliary. She had her leg in a plaster cast on account of recent fracture. She served as chairman of the conference.

We were honored to have Dr. H. H. Shoulders, President of the A.M.A. to address the conference. Dr. Morris Fishbein gave a full account of the plans for the national meeting in Atlantic City next June, when we will celebrate the 100th anniversary of the A.M.A. and the 25th birthday of the Woman's Auxiliary.

We have just received word from Mrs. John O'Connell that an Auxiliary has been organized for Nodaway-Atchison-Gentry-Worth counties. As organization chairman, she has been working hard at her job and she is optimistic that other auxiliaries will be organized in the near future.

I wish a Happy New Year for each member of our state auxiliary and I urge every member to be as active as possible for our organization throughout 1947.

Mrs. Walter E. Koppenbrink.

Hygeia

The eleventh annual *Hygeia* contest is in progress and will close January 31, 1947.

Missouri in the past has shared well in the *Hygeia* contests. I am confident that Missouri will again be among the winners in this present contest. As State *Hygeia* Chairman, I wish to state that our Missouri *Hygeia* program is to get *Hygeia* distributed to as many homes and public places as possible.

As the contest is nearing its close, I earnestly urge each county auxiliary to make a last effort to secure as many additional subscriptions as possible and make Missouri a winner.

Mrs. O. A. Carron, Chairman,
State Hygeia Committee.

Organization

Not only are we happy and proud once but twice for we have two new county auxiliaries.

On December 9 the Auxiliary to the Nodaway-Atchison-Gentry-Worth Counties was organized. Information as to the number of charter members has not as yet been forthcoming, but the following women were elected to office: President, Mrs. H. C. Bauman, Maryville; vice president, Mrs. Elvin D. Imes, Maryville; secretary, Mrs. S. L. Simpson, Stanberry; treasurer, Mrs. R. C. Person, Maryville.

On December 12, the women of St. Francois-Iron-Madison-Washington-Reynolds counties met at the State Hospital in Farmington and organized an auxiliary with eleven charter members. The following officers were elected: President, Mrs. C. H. Appleberry, Flat River; vice president, Mrs. H. C. Gaebe, Desloge; secretary, Mrs. Van W. Taylor, Bonne Terre; treasurer, Mrs. S. A. Lanzafame, Farmington.

The Auxiliary congratulates the officers of the two new organizations and tenders a hearty welcome to all members.

Mrs. John O'Connell, Chairman,
Organization Committee.

Essay Contest

Interest is running high in the Auxiliary's 1946-47 Essay Contest. A number of high school teachers and students have written Association headquarters seeking additional copies of the rules.

News stories concerning the contest have been published widely throughout Missouri. On one story alone —that announcing the contest—26 clippings from Missouri newspapers were received within one week.

Radio stations in three cities, St. Louis, Kansas City and Hannibal, have broadcast programs featuring the contest. Efforts are being made to schedule broadcasts in other cities. In this connection, it will be most helpful if Auxiliary members will cooperate promptly with our public relations department in getting in touch with their local radio station. Three requests for such local contact already have been sent out. Some have not responded.

Rules have been sent to all high schools.

Mrs. F. G. Pernoud, Chairman,
Essay Contest Committee.

BOOK REVIEWS

Penicillin—Its Practical Application. Under the General Editorship of Professor Sir Alexander Fleming, M.B., B.S., F.R.C.P., F. R. C. S., F. R. S., Professor of Bacteriology in the University of London, St. Mary's Hospital, London. The Blakiston Company, Philadelphia, 1946. Price $7.00.

This book comprises twenty-seven integrated articles by thirty authors, who cover the subject of penicillin in all its aspects. All of the contributors are British and it is interesting to note that their views seem to coincide with present-day conceptions on this side of the Atlantic.

The clinical articles portray practice with which American physicians are fairly familiar through their own current journals and manufacturers' literature, but the article, "The Chemistry of Penicillin," was largely new to this reviewer and very interesting.

The book is well organized, well written and worth reading. B. S. P.

The Chest, A Handbook of Roentgen Diagnosis. By Leo G. Rigler, M.D., Professor and Chief, Department of Radiology, University of Minnesota. The Year Book Publishers, Inc., Chicago. Price $6.50.

Like the other books of the series, this is a pocket-sized volume clearly printed and exceptionally well illustrated. It is concise and yet sufficiently comprehensive to deal adequately with the subject of chest roentgenography. The book is written in atlas-like form significant structures indicated upon the roentgenograms. It covers very completely the diseases of the lungs and pleura.

Its author, Dr. Leo G. Rigler, brings to the book the wealth of his radiologic experience as Professor of Radiology at the University of Minnesota. His dynamic personality and his thorough and keen observation are evident in the execution of this work.

No radiologist or clinician could afford to be without this excellent book. L. R. S.



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He distinguished himself as editor of the American edition of Gray's "Anatomy" and as author of the widely esteemed "Manual of Surgery". Because of his knowledge and genial wit, visiting physicians and surgeons seldom missed an opportunity to attend his clinics, and his surgical teaching has permeated every portion of the civilized world.



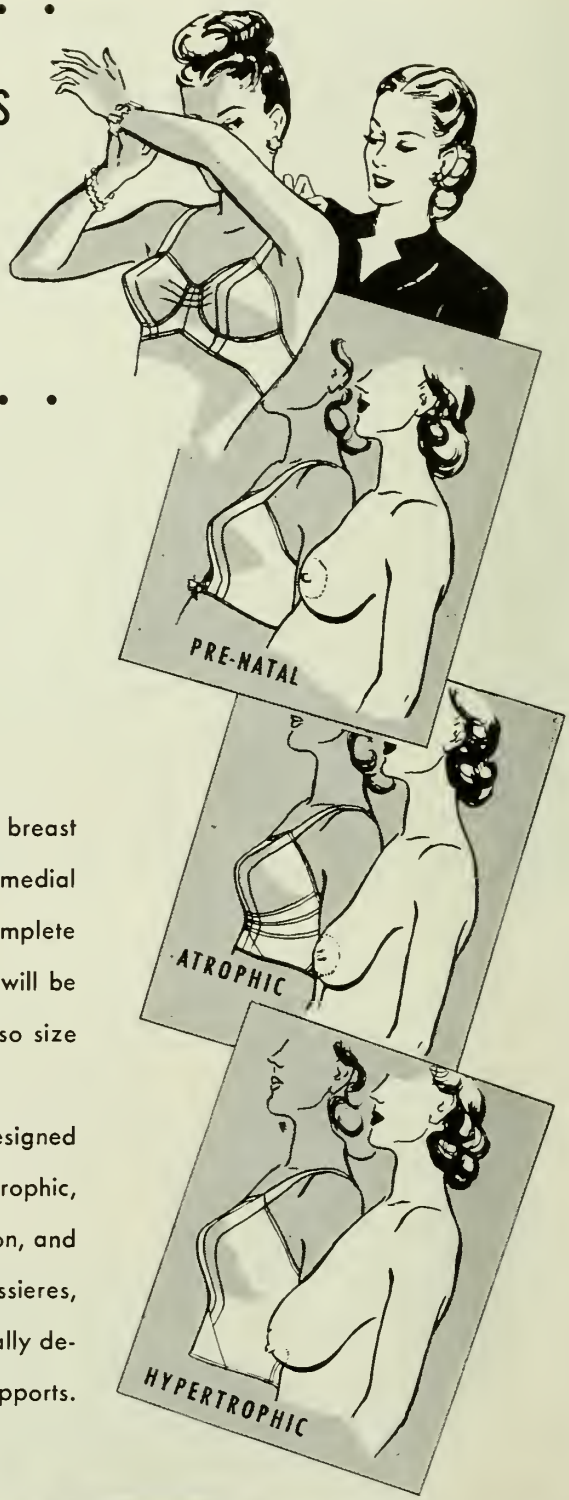
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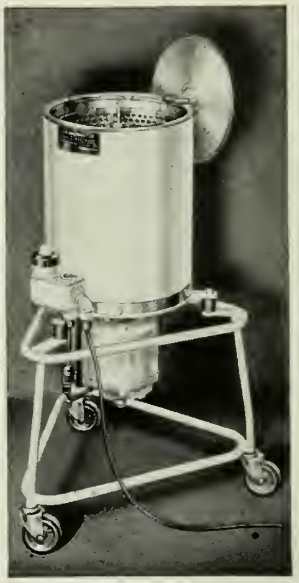
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Russell, H.G.B., abstracted, Proc. Roy. Soc. Med. 36:401.



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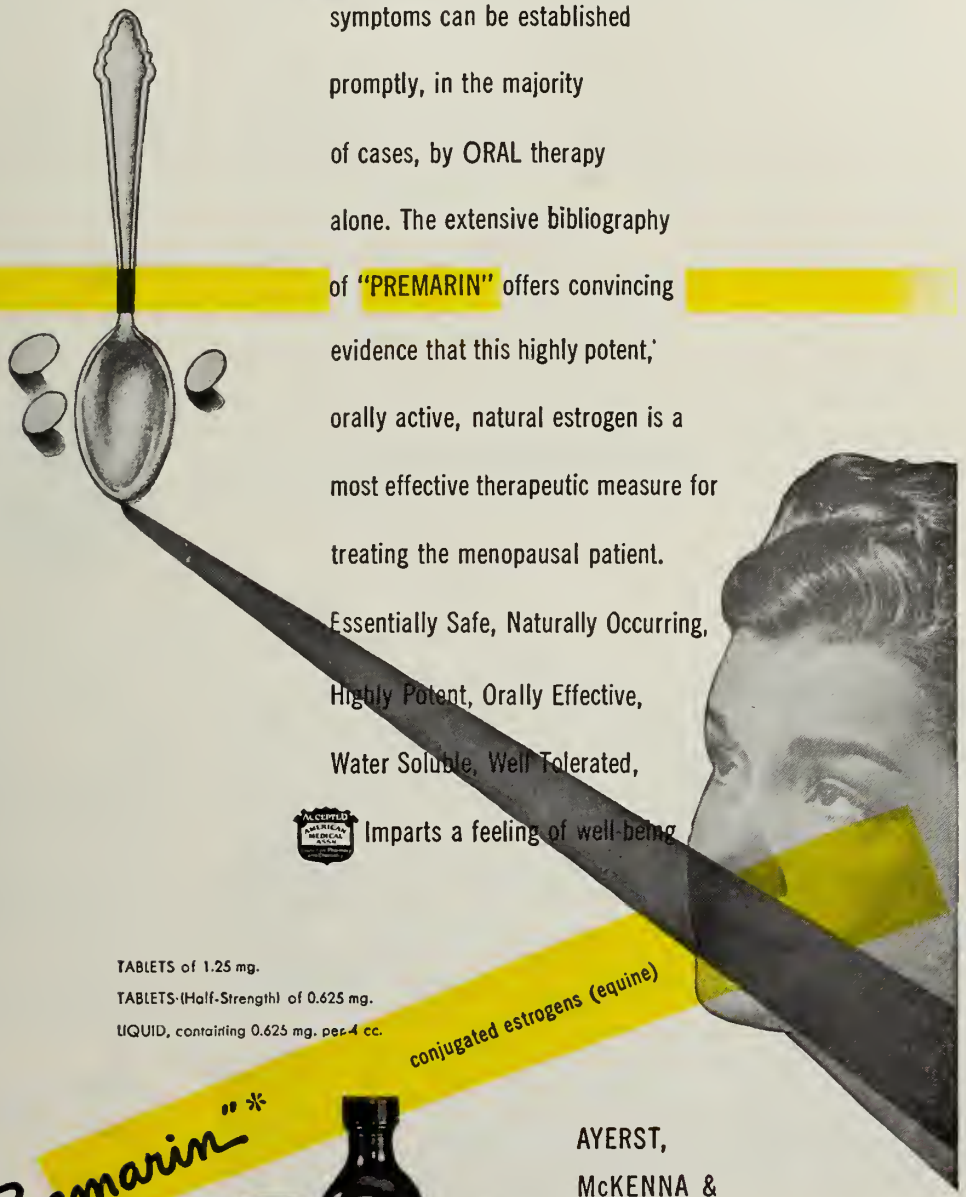
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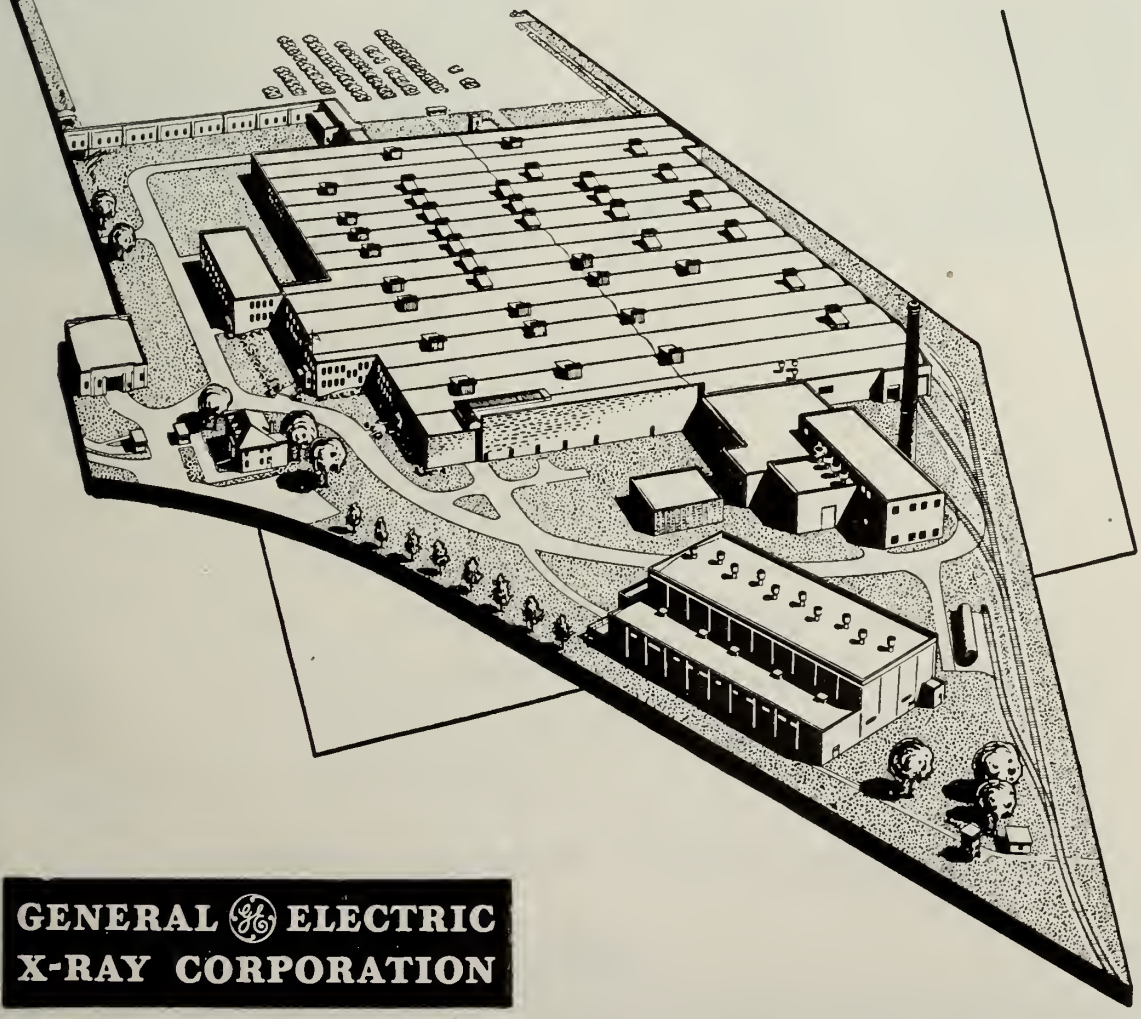
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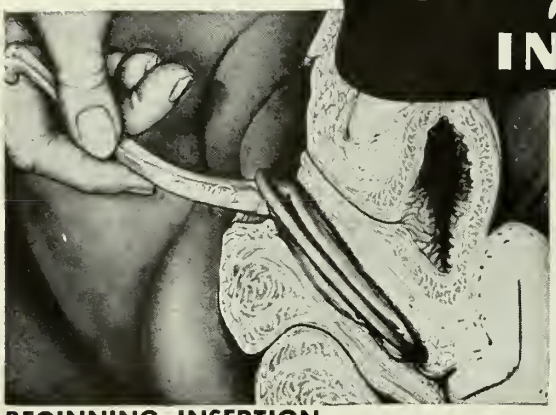
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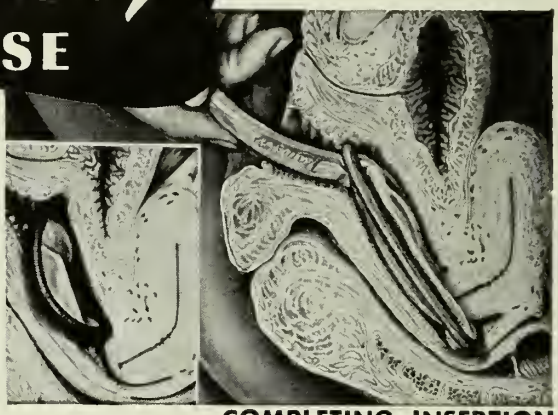


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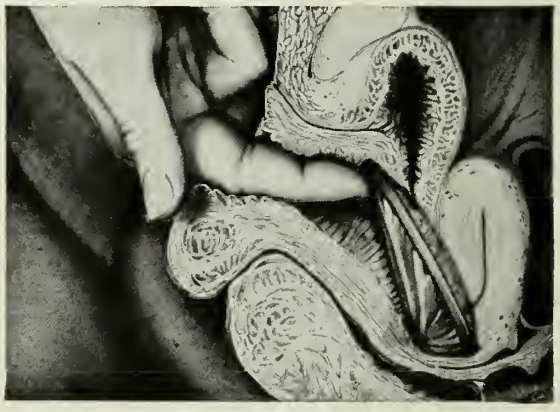


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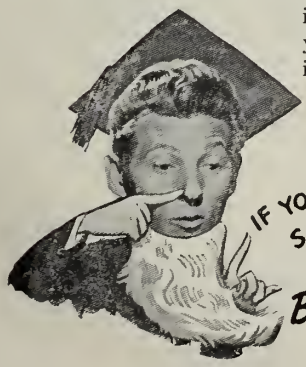


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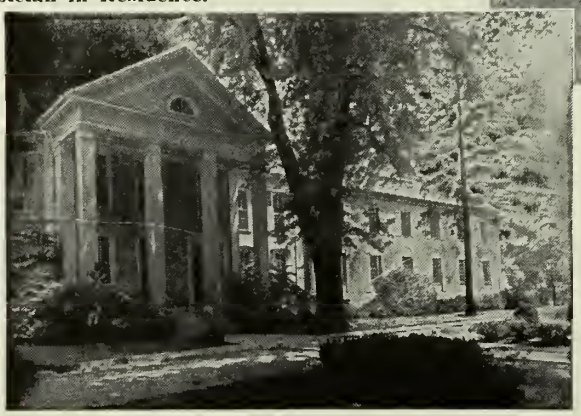
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INDEX TO ADVERTISERS

Abbott Laboratories 14
Aloe, A. S., Company 58
American Meat Institute 16
Ames Company 56
Ar-Ex Cosmetics, Inc. 68
Arlington Chemical Co. 71
Ayerst, McKenna & Harrison 57

Borden Company 48
Bristol Laboratories, Inc. 36
Burroughs Wellcome & Company 7, 51

Camel Cigarettes 10
Camp, S. H. & Company 54
Chicago Medical Society 46
Ciba Pharmaceutical Prodcts, Inc. ..... Insert
Coca-Cola Company 38
Commercial Solvents Corporation 62
Cook County Graduate School of Medicine 46

Denver Chemical Mfg. Company 55

Emerson, J. H., Company 52

Faith Hospital 66

General Electric X-ray Corporation 59
Glenwood Sanatorium 64
Gradwohl School of Laboratory Technique 46

Hamilton-Schmidt Surgical Company 68
Hanger, J. E., Inc. 70
Harrower Laboratory 49
Holland-Rantos Company 40
Hynson, Westcott & Dunning, Inc. 69

Isle, W. E., Company 56

Lilly, Eli and Company ..... Insert
Lov-e Brassiere Company 50
Luzier's Inc. 67

M & R Dietetic Laboratories, Inc. 65
Major Clinic Association 5
Mead Johnson & Company 72
Medical Protective Company 44
Mid-South Post Graduate Medical Assembly 61
Milwaukee Sanitarium 38
Miscellaneous Announcements 70
Mosby, C. V. Company 34
Mullen Ambulance Company 66

National Pathological Laboratory 64
Norbury Sanatorium 66
North Shore Health Resort 58

Parke, Davis & Company 2, 3
Philip Morris & Company 12
Physicians Casualty Association 64
Pogue, Mary E., School 66
Pregnancy Diagnostic Laboratories 56
Producers Creamery Company 45

Quincy X-ray and Radium Laboratories 68

Ralph Sanitarium 68
Robinson Clinic 56

Schenley Laboratories 11
Schering Corporation 43
Schmid, Julius, Inc. 60
Searle, G. D. & Company 29
Smith-Dorsey Company 69
Smith, Kline & French Laboratories 13, 53
Squibb, E. R. & Sons 9
Stokes Sanitarium 56

United-Rexall Drug Co. 30
Upjohn Company 4
U. S. Brewers Foundation, Inc. 41
U. S. Savings Bonds 63

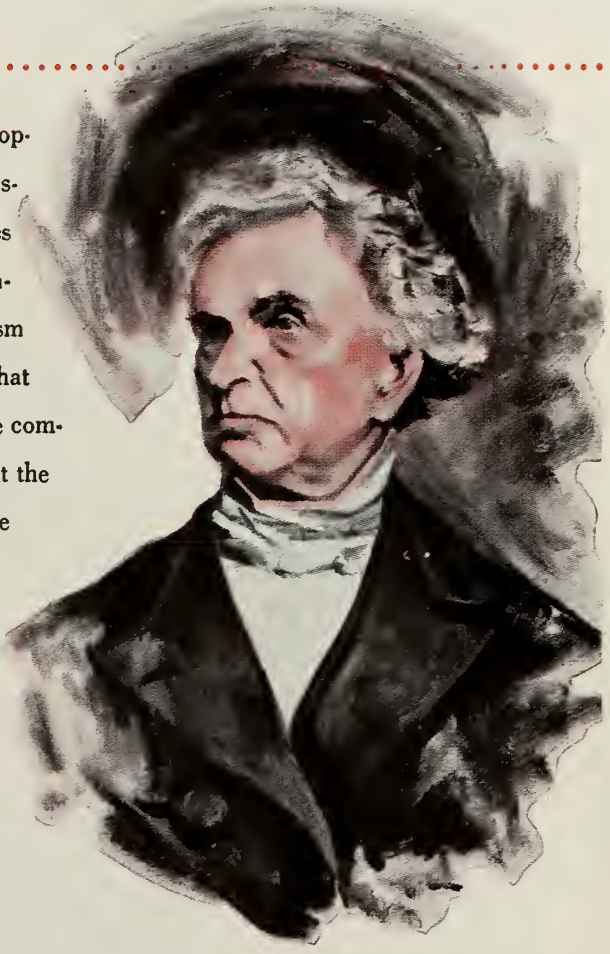
Wallace Sanitarium 52
Winthrop Chemical Company 15
Worrell, Dorothy 56
Wyeth, Inc. 33

Zemmer Company 68

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*Frazer, J. G.: The Golden Bough, vol. 1, New York. Macmillan & Co., 1923



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(Contents Index Page 77)

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CONTENTS

The Treatment of Malaria. G. M. Saunders, M.D., St. Louis 89

Endocrine Problems From the Pediatrist's Viewpoint. Arild E. Hansen, M.D., Galveston, Texas 94

The Place and Function of the Tuberculosis Sanatorium in Missouri. Charles A. Brasher, M.D., Mount Vernon, Mo. 102

Abstracts and Digests—

What Is Early Tuberculosis 106

Book Reviews 107, 114, 115

Editorials—

Annual Session 109

Use of Penicillin 109

News Notes 109

Legislation 110

Program of Eighty-Ninth Annual Session of Missouri State Medical Association 110

Miscellany—

Program on Diseases of the Chest..... 113

Cancer Clinics at the Ellis Fischel State Cancer Hospital 113

Society Proceedings 113

Roster of Members of Missouri State Medical Association 117

Roster of Members by County Society..... 133

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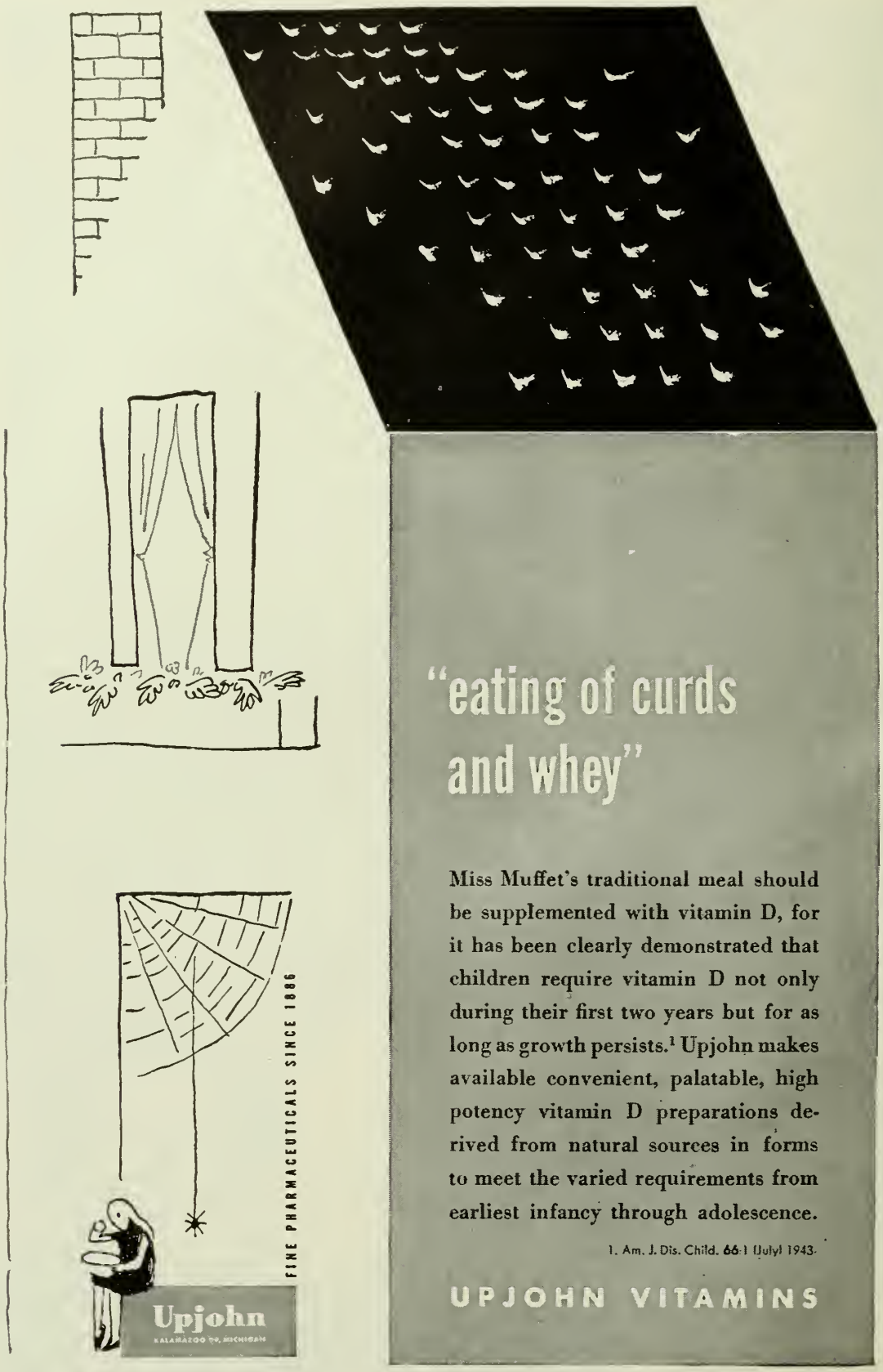
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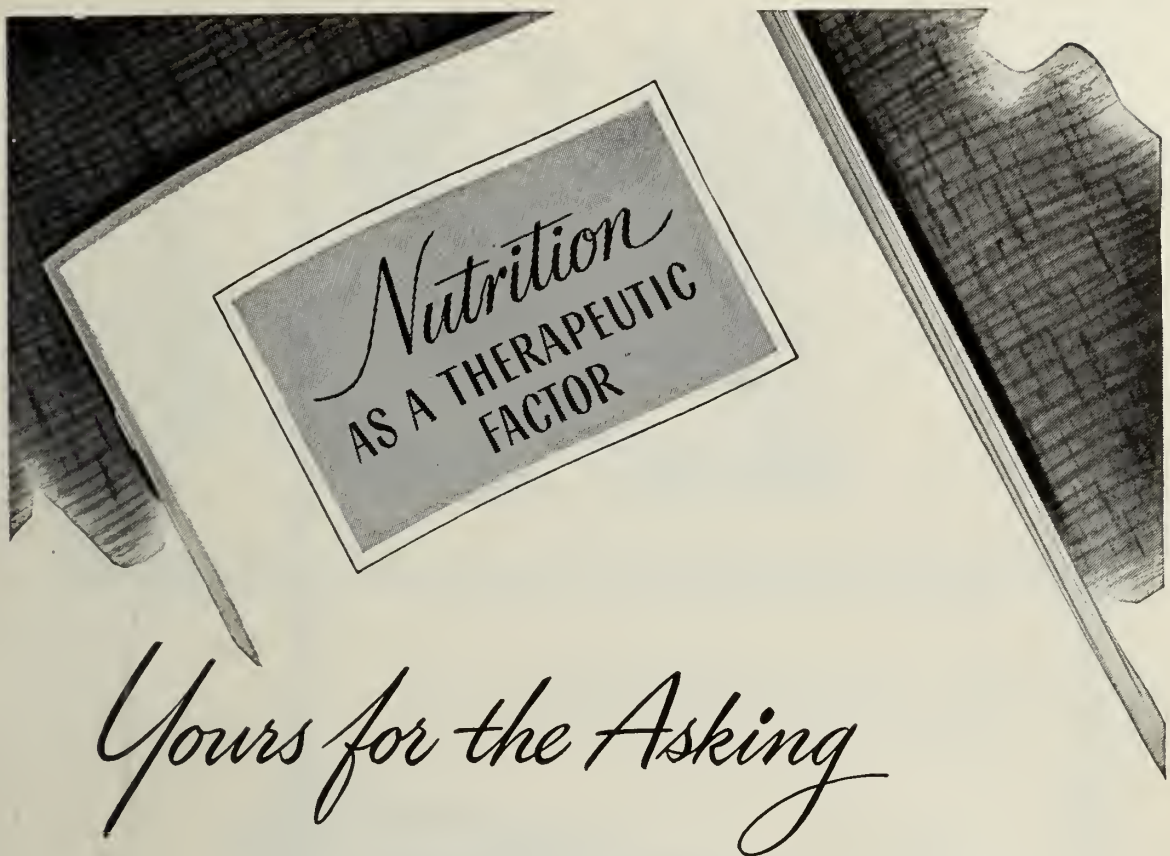
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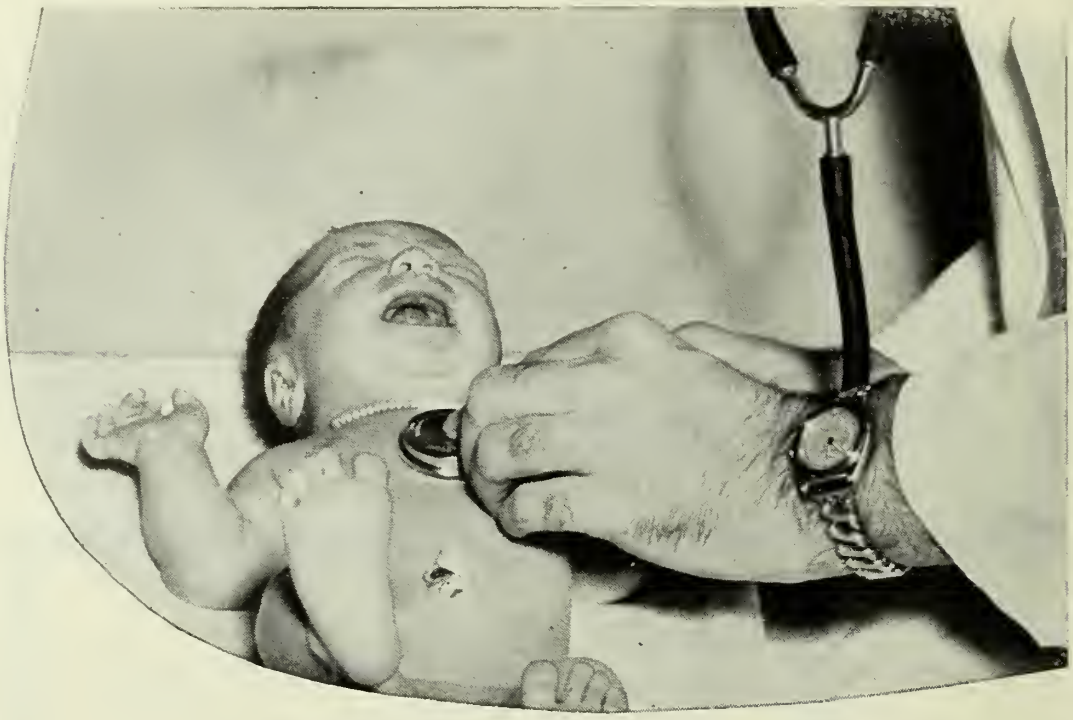
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THE TREATMENT OF MALARIA

G. M. SAUNDERS, M.D.
ST. LOUIS

Malaria is not a new problem to physicians of the Mississippi basin where the disease has been endemic in many regions. The situation recently has become aggravated, however, by the return of ex-servicemen who were infected with malaria while serving overseas, particularly in the Pacific theaters. Most ex-servicemen with recurring malaria are treated by the Veterans Administration, either in one of the government hospitals or through the services of local practicing physicians on a fee-for-service basis, while others find their way to the medical wards of the general hospitals. Not infrequently, they present diagnostic as well as treatment problems.

There have been striking advances in the treatment of malaria during the last few years, and it is the purpose of this discussion to present the current opinion on the most efficient therapy of the disease.

HISTORY

For more than three hundred years the history of the treatment of malaria was the history of the use of cinchona bark or some of its alkaloids. Quinine or one of the other crystallizable alkaloids were the only effective substances which were available for the treatment of malarial fevers until shortly after the first World War, when new synthetic preparations were developed. It is no wonder, then, with the tradition of three hundred years, that quinine has remained the drug of choice of many physicians even in the presence of proven more efficient remedies.

In 1925, plasmochin was first synthesized by Schulemann and his coworkers, and a year later it was used clinically in the treatment of malaria by Muhlens.[1] Since that time it has been used alone and in combination with quinine and other drugs in the treatment of malaria, but its chief value was felt to be its action in destroying the gametocytes. Plasmochin fell into disrepute because of its toxicity, but it recently has been revived in the hope that it would prove effective in eradicating the troublesome relapsing vivax infections. In 1930, atabrine was synthesized by German workers[1] and since then it has been used more and more.

Shortly after the outbreak of World War II, the supplies of quinine from the East Indies were cut off, the Allied Nations found themselves with only small amounts of cinchona bark or the alkaloids and an inadequate supply of atabrine, and incomplete knowledge of the chemical processes involved in synthesizing it. Extensive investigations were started both abroad and in this country where the National Research Council between 1942 and 1946 supervised the synthesis and testing of many thousands of compounds. Atabrine finally was produced in large quantities as a result of intensive investigations carried out in laboratories throughout the country. Studies were conducted on acridine compounds other than atabrine and on various other types of compounds including the 8-amino quinoline group, to which plasmochin belongs, and the 4-amino quinoline group, to which belongs chloroquin,[2] which has recently been released for general use, and numerous others. As a result of researches carried on in the field, in the laboratory and in the hospital wards, it has been found that atabrine, which is also called quinacrine and mepacrine, is far superior to quinine both in the suppression of malaria and in the treatment of acute attacks, and that chloroquin is probably as much superior to atabrine as atabrine is superior to quinine.[3]

DIAGNOSIS

It is axiomatic that accurate diagnosis should be made before treatment is instituted, and the only certain diagnostic test is the demonstration of ma-

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laria parasites in circulating blood. Frequently it is difficult for the local practitioner to confirm his clinical diagnosis of malaria by an examination of the peripheral blood because of the lack of equipment or experience, or both. However, in all cases, thick and thin blood films should be examined by one of the private or public diagnostic laboratories before treatment is started. Frequently, treatment can be withheld twenty-four hours or more until a laboratory report is available. If, on the other hand, the patient is critically ill, treatment should be initiated immediately, before the report is received. But it is well to bear in mind that a clinical diagnosis, in the absence of confirmatory laboratory findings, may be in error, and some other more dangerous condition may exist, for which prompt and effective treatment may be a lifesaving measure.

The serviceman who has had malaria nearly always attributes any subsequent febrile illness to the same cause and, when he consults a physician, he probably will state that he is suffering a relapse of malaria. Recently, such a patient was seen in one of the U. S. Naval hospitals. He was admitted about 8 o'clock in the evening with a temperature of 105 F. and a history of having had repeated attacks of malaria while serving in the Southwest Pacific area and since returning to this country. He told the intern who was on duty at the time that "his old malaria had come back on him." The usual laboratory tests were ordered and the patient was sent to the ward. Only supportive and symptomatic treatment was given since it was the rule to withhold specific therapy for malaria until the patient had been seen by one of the medical officers of the Tropical Disease Service and until laboratory confirmation was obtained. Furthermore, since nausea and vomiting frequently preclude oral medication at the height of the malarial paroxysm and, since in most cases the temperature drops and the symptoms abate within a few hours, treatment commonly is withheld until oral medication can be given, except in the case of critically and seriously ill patients. When seen early the next morning by the medical officer, the patient's temperature had risen to nearly 106 F. He was delirious and stuporous and was obviously critically ill. A check with the laboratory revealed that no malaria parasites were found and that the leukocyte count was more than 20,000 per cm. A few transient râles were found at the base of one lung by one of the chest consultants and roentgen ray examination revealed early signs of lobar pneumonia. Prompt treatment with penicillin and sulfadiazine resulted in a complete recovery. However, had the diagnosis been deferred for many more hours, and had specific treatment for pneumonia been withheld, it is possible that a fatality would have resulted.

Errors of diagnosis not uncommonly are made when patients with delayed primary attacks of malaria complain of vague malaise, general aches and pains and fever. Quite frequently the condition is thought to be influenza, pharyngitis or other upper respiratory tract infection. Malaria is not at first considered as a diagnostic probability because of the absence of a history of previous attacks in persons who had long exposure to the disease followed by many months experience away from endemic areas without the use of suppressive drugs. Frequently, such patients are given one of the sulfa preparations, which help to mask the symptoms, but which are inefficient in controlling acute malarial attacks.[4]

There is little that is characteristic about the prodromal symptoms of malaria which are similar to those of any febrile illness, namely, malaise, weakness, aches and pains, particularly in the back of the neck and in the lumbar region. The typical clinical picture of regularly recurring chills and fever, large spleen and a secondary anemia, is frequently not found[5] and malaria always should be suspected when a febrile illness occurs in a person who is known to have been exposed.

There is other clinical and laboratory evidence which suggests the diagnosis. There may be a characteristic malarial paroxysm with chill and fever, followed by profuse perspiration and an afebrile period. The sclerae may appear icteric, herpes frequently appear about the mouth, nose or ears, and the spleen may be enlarged. Suggestive laboratory evidence includes an increased icteric index, a low total leukocyte count, with a relative increase in the large mononuclear cells, a weakly or strongly positive cephalin flocculation test, and an increased erythrocyte sedimentation rate.[6]

It is also to be remembered that the serologic tests for syphilis are frequently positive during or after an attack of malaria. Some observers have claimed that if a variety of tests are performed at frequent intervals that one or more tests will be found positive in all cases. As a general thing, however, when serologic tests are performed within three weeks after the onset of the acute attack of malaria, from 10 to 20 per cent of Kahn reactions are found to be positive. Positive tests practically always revert to negative within from four to six weeks.[7]

However suggestive the clinical and other laboratory procedures may be, the demonstration of circulating malaria parasites must be relied upon to prove the diagnosis. Although thin films are useful in determining the species of parasite and are commonly relied upon in most laboratories, practically all malariologists prefer the use of thick films in the diagnosis of malaria. Thick films, because of the larger quantity of blood which can be examined in a shorter period of time, are much more efficient in detecting the presence of parasites, particularly when they are few in number.

TREATMENT

Treatment of malaria may be conveniently classified as specific chemotherapy and general sympto-

matic and supportive treatment. The principles are essentially the same regardless of the species of parasite involved, although in falciparum infections, certain complications must be watched for and some details of treatment may be different. The present discussion applies principally to vivax malaria because it is practically the only species which is seen among returned servicemen, and it is by far the commonest type endemic in this area.

CHEMOTHERAPY

There have been almost as many schemes of chemotherapy in malaria, including dosage schedules, duration of treatment and combination of drugs, as there have been malariologists. Basically, however, the important principle in treatment is to introduce into the body, as quickly as toxicity permits, a quantity of antimalarial drug sufficient to produce a concentration in the blood which is known to be therapeutically effective. The three important drugs at present available for the treatment of malaria are chloroquin, atabrine and quinine.

The drug of choice, the one which will soon be on the market in adequate quantities is chloroquin, the chemical name for which is 7-chloro-4(4-diethylamino-1-methylbutylamino)-quinoline. It is prepared and tableted for clinical use in the form of the diphosphate, which contains 62 per cent of the base drug. Dosages will be given in terms of the base so that, when the diphosphate is used, the amounts must be increased correspondingly.

Toxic manifestations have been practically nonexistent when the drug is used in ordinary dosages, and have included such vague symptoms as mild nausea and vomiting, diarrhea, transient visual disturbances and generalized pruritus. Much larger doses than those ordinarily given have been administered to volunteers without any significant increase in the toxic manifestations.

Numerous dosage schedules of this drug have been tried, including the administration of total amounts of 1.0 gm. in approximately twenty-four hours, 1.5 gm. over a four-day period and 2.0 gm. over a seven-day period.[3] However, the immediate response to treatment and the appearance of subsequent relapses indicate that the smaller dose given over a shorter period is as effective as larger doses. It is recommended that in an acute attack of vivax malaria, chloroquin be given, by mouth, according to the following schedule:

Initial Dose: 0.4 gm. (base).
8 Hours Later: 0.3 gm. (base).
8 Hours Later: 0.3 gm. (base).

This schedule permits the administration of a total dosage of 1.0 gm. in sixteen hours. It has been shown that a therapeutically effective drug level is attained within a very few hours after the administration of the first dose, and is maintained for at least a week.[7] The doses indicated may be varied 0.1 or 0.2 gm. depending upon the size of the tablets available for use without affecting the result. It is frequently wise to defer specific therapy until the acute paroxysm has abated and the customary nausea and vomiting has disappeared. If, however, the patient is critically ill with a very high temperature and delirium, parenteral therapy should be instituted immediately. In such cases, atabrine is the drug of choice and should be given in an initial dose of 0.4 gm., 0.2 gm. into each gluteal region, which produces an effective blood level within fifteen minutes. As a rule, within a few hours, the symptoms will have abated and therapy with chloroquin can be continued as stated previously.

The drug of second choice, to be used when chloroquin is not available, is atabrine, a substituted alkyl-amino derivative of acridine. It is a bitter, yellow powder, which is usually marketed as the di-hydrochloride, in tablets or as a powder which dissolves in water to the extent of 3 per cent.

Toxic reactions to the usual therapeutic doses are uncommon and include nausea and vomiting, and diarrhea. Amounts of 10 gm. or more have been taken on occasion by mistake or with suicidal intent, and commonly produce stupor, delirium and collapse. The case of a European soldier was reported recently who swallowed about 250 tablets (25 gm.) of atabrine. He suffered from vomiting, diarrhea and collapse, and when seen three hours later he was in a stuporous condition. Treatment, including gastric lavage and the administration of adrenalin and intravenous fluids, brought about a speedy recovery, and by the following morning he showed no symptoms. His plasma atabrine level was said to be 906 micrograms per liter.[8]

The prolonged administration of atabrine has been shown to cause dermatitis in rare instances.[7, 9, 10, 11] Instances have been reported in servicemen who had been taking atabrine daily for several weeks or months. A form of skin rash developed, which may be classified roughly into two main types. One type, which was called "atypical lichen planus," was characterized by scaling macular lesions, frequently showing a brownish or violaceous pigmentation and leading to atrophic pigmented scars. The other type was characterized by a generalized exfoliative dermatitis. Fortunately, such cases have been rare, amounting to probably less than one in a thousand persons being given suppressive doses of the drug. The condition usually begins to subside promptly after the withdrawal of atabrine, although permanent scars may result. Great caution should be used in administering atabrine to individuals who give a history suggestive of chronic dermatitis while on previous atabrine medication.

Atabrine should be given by mouth, except in cases in which nausea and vomiting make this impossible, according to the following dosage schedule, which has been generally employed by the armed forces during the last two years: 0.2 gm. every six hours for five doses, followed by 0.1 gm.

three times a day for six days. A total dosage of 2.8 gm. is given in approximately one week. If parenteral medication is necessary, intramuscular atabrine should be given as stated and the schedule continued with oral administration as soon as possible.

An alternative dosage schedule for atabrine, which has been called "the flash treatment" because of the large initial dose, which also has proven to be effective, is as follows: an initial dose of 0.4 gm. is given intramuscularly and 0.2 gm. is given by mouth at the same time. This is followed by 0.2 gm. by mouth every four hours for three doses, and thereafter by 0.1 gm. daily for six days, or a total of 1.8 gm. over a period of approximately seven days.

Quinine has had a long and honorable history in the treatment of malaria and because of this many physicians are loath to give up its use in favor of other preparations. However, the newer synthetic drugs are more effective in controlling acute attacks and in preventing subsequent relapses. Quinine should be reserved for the treatment of patients who are known to have an idiosyncrasy to other antimalarials.

Mild symptoms of toxicity are not infrequent following the use of quinine. These include tinnitus, slight deafness, blurring and dimness of vision and nausea and vomiting. An occasional individual is found to have an idiosyncrasy to the drug and administration of small doses may cause a train of toxic symptoms including those already stated and, in addition, various forms of skin eruption.

Numerous treatment schedules have been advocated, using quinine in massive initial doses, large doses over periods varying from one to five weeks and smaller doses for this time or a longer period. However, it has not been shown that large doses or long periods of administration have any greater effect in controlling the acute attack and in delaying future relapses than smaller doses for shorter periods. When quinine is used in the treatment of the acute attack, it is recommended that it be given in dosages of 0.5 gm. four times a day for the period of one week. In cases in which cinchonism develops, the doses may be diminished after the first day or two of treatment.

Plasmochin may have a place in the treatment of malaria, especially in the management of chronically relapsing vivax infections and because of its apparent superiority over the other preparations in the destruction of gametocytes, particularly those of *Plasmodium falciparum*. It is a toxic drug, however, with a narrow margin of safety. When given in large doses or to particularly sensitive individuals, cyanosis due to methemoglobinemia may develop or hemolysis may occur with resulting hemoglobinuria and jaundice. The drug also has a toxic effect upon the heart as evidenced by tachycardia, extrasystoles and by abnormal electrocardiographic tracings. Because of its toxic nature, when plasmochin is employed in the treatment of malaria, it should be used only under careful medical supervision and preferably only in hospitalized patients.

It is felt by some that the use of quinine in combination with plasmochin not only has a synergistic action, but also appears to lessen the toxicity of plasmochin. The following schedule of combined treatment has been used recently in a series of chronic relapsing vivax malaria patients with apparently good results and with few toxic manifestations except for nausea, vomiting, abdominal pain and diarrhea:[6]

Days 1 and 2: Quinine sulfate 1.0 gm. and plasmochin naphthoate 0.020 gm. at 8 a. m., 4 p. m. and midnight.

Days 3 to 7: Quinine sulfate 0.6 gm. and plasmochin naphthoate 0.020 gm. at 8 a. m., 4 p. m. and midnight.

Days 8 to 14: Quinine sulfate 0.6 gm. and plasmochin naphthoate 0.040 gm. at 8 a. m., 4 p. m. and midnight.

Since plasmochin naphthoate contains about 50 per cent of plasmochin base, the dosage of plasmochin in this schedule expressed in terms of base is 10 mg. three times a day for the first week and 20 mg. three times a day for the second week, or a total of 630 mg. in the two-week period.

COMPARISON OF RESULTS

The efficacy of any form of chemotherapy in malaria may be judged by the symptomatic improvement, the time required for the temperature to return to a sustained normal level and for parasites to disappear from the peripheral blood and the elapsed time from the end of treatment to the next subsequent relapse.

The disappearance of subjective symptoms of malaise, headache and weakness is more rapid following the administration of chloroquin than after treatment with atabrine. Quinine alone or in combination with plasmochin is about equal to chloroquin in this regard, although in some instances the toxic side effects of the drugs mask the subjective symptoms of the disease in the case of quinine or plasmochin. The return of temperature to a maintained normal level and the disappearance of parasites is more rapid when chloroquin is used than after atabrine as shown by table 1 which gives the percentage of patients showing return of temperature to a sustained normal and disappearance of parasites from the peripheral circulation within 24 and 48 hours after the start of treatment.

Table 1.

	24 Hours		48 Hours	
	Temp. Normal	Parasites Absent	Temp. Normal	Parasites Absent
Drug	In	In	In	In
Chloroquin	96%	52%	100%	98%
Atabrine	26%	15%	82%	78%

When quinine is used alone or in combination with plasmochin, the return of temperature to normal is about as rapid as when chloroquin is used, but the disappearance of parasites from the periph-

eral circulation is slower. From the standpoint of the time of appearance of relapses subsequent to treatment, it has been shown that chloroquin is most effective and quinine alone is least effective. In a series of chronic relapsing vivax infections treated with chloroquin, atabrine or quinine, the per cent of patients relapsing within a month, forty days or fifty days following the termination of treatment is given in table 2.[3]

Table 2. *Percentage of Patients Relapsing After Treatment.*

Drug	Within 1 Month	Within 40 Days	Within 50 Days
Chloroquin	0	1%	16%
Atabrine	9%	28%	50%
Quinine	54%	67%	85%

When the observation period was extended for as long as 120 days in another series of patients, two thirds or more had relapsed regardless of the drug used, with a slight advantage in favor of chloroquin, quinine being least effective.[7]

MANAGEMENT OF HABITUAL RELAPSERS

Many of the service personnel who were infected with vivax malaria have continued to relapse regularly at intervals of from four to twelve weeks. This seems to be particularly true of those who were infected in the Southwest Pacific theatre, but it is not known whether the chronicity and frequency of relapses is dependent upon strain differences in the parasites or upon the intensity and duration of the infecting doses. Relapses have continued to develop with almost clocklike regularity in some individuals for a period of two years following removal from endemic areas, but in practically all cases there has been a tendency toward a decrease in the severity of the attacks and a lengthening of the interval between attacks. It is probable that within three years following the last infection most cases will have developed sufficient immunity so that relapses will occur seldom or not at all, and will be relatively mild in nature.

In the meantime, the management of these chronic relapsers presents a troublesome problem to patients and to physicians. Persons who suffer malaria relapses every six or eight weeks do not have time to regain normal health between attacks and during the acute illness they are incapacitated for two or three days or more. In such circumstances, it is frequently difficult for a man to hold a job or to continue his studies. Chloroquin, because of its rapid action and short treatment schedule, is much the best drug to use in the treatment of acute attacks and, following its use, patients will be incapacitated as a rule only one or two days if the acute attack is recognized and treated promptly. On the other hand, if the attacks are unduly severe and frequent and the individual continues to be partially incapacitated between relapses, or if he is one who is of unusual importance in the general economy of the country, two other methods of management are suggested as alternatives to the treatment of acute attacks as they occur.

First is the use of suppressive treatment with chloroquin given at regularly spaced intervals. It has been demonstrated that 1.0 grams of chloroquin given once a month in divided doses over a sixteen hour period will prevent the development of relapses in the majority of cases for at least six months.[7] However, it is not yet clearly understood whether the underlying infection "ages" during such management, or whether relapses will start again with equal severity and frequency when suppressive treatment is discontinued.

Another alternative method of management is the use of the combined quinine-plasmochin therapy already outlined. Recent work suggests that with the great majority of patients treated in this manner, relapses have failed to appear within an observation period of 120 days, and the assumption is that the majority, if not all the dormant tissue forms of the parasite have been eradicated and a true cure has been achieved. Because of the toxicity of plasmochin, this form of treatment is not to be generally recommended. Other plasmochin-like compounds are being studied, and it is hoped that in the near future preparations of low toxicity will be developed which will cure relapsing vivax infections.

The long continued use of atabrine in suppressive doses of 0.1 gm. or the occasional use of larger quantities, but still less than therapeutic amounts, is to be condemned. Its use in this manner frequently leads to pigmentation of the skin and the danger of producing a dermatitis must be considered. Furthermore, it has not been shown as yet that malaria "ages" under such a regime.

SPECIAL MANAGEMENT OF FALCIPARUM INFECTIONS

It is well known that *P. falciparum* is a much more virulent parasite which not infrequently causes death from complications such as cerebral malaria or blackwater fever. Fortunately, falciparum infections do not relapse chronically and treatment with the usual therapeutic or suppressive doses of atabrine will eradicate the infection in practically all cases.

Chloroquin is also effective in eradicating falciparum infections,[2] but treatment probably should be continued over a longer period than suggested previously, because it has been demonstrated in the case of atabrine that it is necessary to maintain an effective drug level for from ten to twenty days to eradicate completely falciparum parasites.[12] For this reason, it is recommended that when chloroquin is used in the treatment of falciparum malaria it be given in a total dose of 2.0 gm. over the period of one week, or that 1.0 gm. be given on the first and eighth days of treatment. Either schedule of treatment will serve to maintain a drug concentration long enough to eliminate the parasites.

In cases of cerebral malaria it is imperative to attain a therapeutic level in the blood as quickly as possible. Since oral medication is usually impossible, treatment must be given parenterally.

The drug of choice is atabrine given in an initial dose of 0.4 gm. intramuscularly, followed by oral or intramuscular atabrine or by oral chloroquin depending upon the condition of the patient.

In blackwater fever, it is still debatable whether chemotherapeutic agents, including quinine, atabrine or chloroquin, precipitate hemolysis, but it is felt that the administration of an effective antimalarial is imperative and chloroquin should be given by mouth or atabrine by the intramuscular route.

SYMPTOMATIC AND SUPPORTIVE TREATMENT

The judicious use of nonspecific drugs can do much to comfort the patient during acute attacks of malaria. Codeine and aspirin in their usual amounts should be employed freely for the relief of pain. Chloral hydrate or one of the barbiturate preparations may be given to relieve insomnia or to quiet restless and agitated patients.

Various supportive measures are indicated at times. These include the intravenous administration of fluids in the form of glucose in saline in patients in whom nausea and vomiting are troublesome, or in whom dehydration has developed. Plasma may be given in cases with low blood pressure and a rapid, thready pulse. Blood transfusions may be needed in cases of severe anemia, or in blackwater fever in which they may be lifesaving. In blackwater fever, in which there is a tendency to precipitation of acid hematin crystals in the kidneys with resulting oliguria or anuria, alkalies should be administered until an alkaline reaction of the urine is obtained. Sodium citrate or sodium bicarbonate by mouth, or intravenous sodium bicarbonate alone, may be given in amounts of 500 cc. of a 2 per cent solution in severe cases.

An important factor in the return to normal after an acute attack of malaria is an adequate diet which should include extra quantities of protein, vitamins and iron. As a rule, the loss of hemoglobin during malaria is rapidly replaced from the iron pigments which have been released, because most of them are lodged in tissue cells instead of being excreted and are utilized again. However, in some cases of chronic malaria in which there is a secondary anemia of moderate or severe grade, supplementary iron must be given to permit speedy return to normal.

CONCLUSIONS

1. Newer, synthetic drugs have been developed which are more effective than quinine or the other cinchona alkaloids in the treatment of malaria.

2. Chloroquin given in a total amount of 1.0 gm. in three divided doses, eight hours apart, is superior to atabrine, which in turn is superior to quinine in causing a disappearance of symptoms, fever and parasites, and in delaying subsequent relapses.

3. When medication cannot be given by mouth because of vomiting, or delirium, atabrine is the drug of choice given intramuscularly in an initial dose of 0.4 gm., 0.2 gm. in each gluteal region, followed when possible by oral medication with chloroquin or atabrine.

4. Symptomatic relief may be gained from the usual analgesics and soporifics. Supportive treatment may include the use of intravenous fluids, blood transfusions, special diets, iron and vitamin preparations.

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ENDOCRINE PROBLEMS FROM THE PEDIATRIST'S VIEWPOINT

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Childhood is a period of growth and development, consequently physicians concerned with the care of children must be interested in the endocrine glands which are all important in regulating the growth and developmental processes. One is apt to feel frustrated, however, when contemplating the subject of endocrine glands because of the difficulty in assimilating the rapid advances in this vast and complex field. In an attempt to orient present knowledge, after surveying the field rather cursorily from the pediatrist's viewpoint, the disorders of the endocrine glands have been classified on the basis of hypofunction, hyperfunction and nonendocrine disease.

THYROID

Hypofunction:

*CRETINISM: ATHYREOTIC, endemic.

MYXEDEMA; infantile, juvenile, adolescent, postoperative.

Hyperfunction:

EXOPHTHALMIC GOITER.

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*The conditions which appear in capital letters are of particular importance in pediatric practice.

Toxic adenoma (rare).
Nonendocrine:
Goiter: congenital, diffuse colloid, adenoma, malignancy.
Thyroiditis (rare): acute, chronic, Riedel's struma.
Anomalies, cysts with hemorrhage.

Disorders of the thyroid gland are encountered more frequently in pediatric practice than disturbances of any of the other endocrine glands. Most of the cretinism encountered now in the United States is on the basis of lack of thyroid gland and endemic cretinism is not much of a problem. Severe myxedema is readily recognizable, but the mild forms are often difficult to diagnose. There is a tendency in practice to prescribe thyroid substance on the basis of relatively meager clinical evidence. It is my belief that physicians should evaluate the results of a therapeutic test objectively before parents are told that the disease is due to a lack of the thyroid gland substance, thyroxin. Although infantile, juvenile and postoperative types of myxedema are seen occasionally, the form of hypothyroidism of particular interest is the type wherein the adolescent girl will have a tendency to gain a little excess weight, slow up in mental processes, have difficulty getting along in school, and will have emotional disturbances and oftentimes excessive movements like those to be seen in the patient with chorea. The most striking finding, clinically, is the low basal metabolic rate, and very encouraging is the response to the administration of thyroid gland substance. Coincidentally, it should be pointed out that thyroid substance never should be given to relieve obesity per se unless hypofunction has been confirmed by a determination of the metabolic rate.

In considering hyperfunction of the thyroid gland, typical Graves' disease, or exophthalmic goiter, is one of the major problems. It has been estimated that from 5 to 10 per cent of all hyperthyroidism is in the childhood age group, but the disorder usually develops after 10 years of age.

Among the nonendocrine problems of the thyroid, goiter is the most common. The possibility of neoplasm, however, must never be forgotten, even in children. Thyroiditis is seen occasionally and anomalies and cysts may occur.

PARATHYROIDS

Hypofunction:
TETANY: Idiopathic, degenerative, postoperative, inflammatory. Metabolic: rachitic, steatorrheic.
Hyperfunction:
Bone involvement (cystic, osteoporotic).
Hyperplasia, adenoma, malignancy.
Metabolic, renal, rachitic.
Functional (idiopathic).
Nonendocrine:
Anomalies.

Tetany is the most frequently encountered dysfunction of the parathyroid glands and may be the cause of convulsive seizures. The diagnosis of hypofunction is substantiated by finding a low serum calcium.

Hyperfunction of the parathyroids is not seen frequently but must be remembered as a cause of bone cysts or osteoporosis, especially when these are found in the asthenic child who has not attained an average height for his age. The determination of calcium in the urine by means of the Sulkowitch reagent is a useful procedure for the recognition of these unusual cases. Differentiation must be made from the osteitis fibrosa cystica which characterizes neurofibromatosis (von Recklinghausen's disease) and from osteodystrophia fibrosa (McCune-Albright syndrome).

PANCREAS

Hypofunction:
DIABETES MELLITUS.
Hyperfunction (hyperinsulinism):
Hyperplasia, adenoma, malignancy.
Newborn of diabetic mother?
Secondary—Endocrinal: Addison's, Simmond's, myxedema. Metabolic: von Gierke's, liver disease, dietary?
Nonendocrine:
CYSTIC FIBROSIS OF PANCREAS.
Pancreatitis, obstruction, stone, malignancy.

Fundamentally the problem of diabetes is the same for children as it is for the adult patient, but the necessity for a well-balanced diet to promote growth and health must be emphasized. Hyperinsulinism will not be seen often, but the possibility of a hyperplasia, adenoma or even malignancy of the pancreas must not be forgotten as an occasional cause for convulsive seizures. A fasting blood sugar determination, and preferably a glucose tolerance curve, must be included, therefore, as routine procedures in any work-up of the convulsive patient.

Cystic fibrosis of the pancreas occurs far more frequently than hitherto suspected and must be kept in mind whenever one encounters the small, poorly-developed infant who is not growing as would be expected on the basis of its caloric ingestion. The diagnosis can be confirmed readily by relatively simple tests.

THYMUS

Hypofunction:
None known.
Hyperfunction:
None known.
Nonendocrine:
ENLARGEMENT: hyperplasia, inflammatory, cysts, fibroma, lipoma, dermoid, thymoma, carcinoma, sarcoma.

Although in pediatric discussions there has been considerable controversy about the thymus gland, it must be admitted that nothing of real significance is known about its function. Most observers feel that sudden death in infants no longer can be explained on the basis of an enlarged thymus.

When such deaths have been investigated carefully, smothering or an overwhelming acute infection often have been found to be the real cause of death. Also, many infants succumbing suddenly from known cause, at autopsy have been found to possess thymus glands as large or larger than the glands which had been assumed to be responsible for extinguishing life. Such glands seem to cause mechanical obstruction in certain infants, but do not offer any embarrassment to others. It has been suggested that myasthenia gravis possibly may be influenced by dysfunction of the thymus but no convincing proof of such a relationship has been advanced. There still must be careful scientific work on the thymus before one can rule it in or out as being a significant factor amongst the endocrinopathies in the childhood period.

PINEAL

Hypofunction:
None known.
Hyperfunction:
Not established (macrogenitosomia praecox in males is probably either incidental or secondarily associated with tumors).
Nonendocrine:
Calcification.
Tumors: cyst, pinealoma, pinealoblastoma, teratoma, cholesteatoma, ganglioneuroma.

There is no real information in regard to either hypofunction or hyperfunction of the pineal gland. Many believe that the fundamental difficulty for the macrogenitosomia praecox complication of early development in males lies not in the pineal gland but in the associated central nervous system structures, such as the hypothalamus or the corporaquadrigemina. A number of children with tumors of the pineal body have had no endocrine disturbances demonstrable.

HYPOPHYSIS—ANTERIOR LOBE

Hypofunction:
SIMMOND'S DISEASE (hypophyseal cachexia)—atrophy, fibrosis, thrombosis, embolus, hemorrhage, inflammatory, neoplastic.
PITUITARY DWARFISM (infantilism, nanosomia pituitaris).
Progeria?
Dystrophia adiposogenitalis — Froehlich's syndrome? (The obesity is probably due to hypothalamic lesion.)
Chromophobic adenoma? (May give dwarfism.)
Hyperfunction:
Acidiophilic—GIGANTISM (may have deficiency later—eunuchism); Acromegaly (rare).
Basophilism — Cushing's syndrome (females mostly, children rare).
Adenoma—eosinophilic or mixed cells.

HYPOPHYSIS—POSTERIOR LOBE

Hypofunction:
DIABETES INSIPIDUS—idiopathic, primary lesion in hypothalamus.
Hyperfunction:
None known.

HYPOPHYSIS—EITHER LOBE

Nonendocrine:
Adenoma—chromophobic (most common symptoms on basis of contiguous relationships).

LESIONS NEAR HYPOPHYSIS WHICH MAY AFFECT ENDOCRINE FUNCTION

Craniopharyngioma: tumors of hypophyseal ducts, cysts of Rathke's pouch; (local symptoms first, pituitary hypofunction later).
Hypothalamic region:
Types of lesions: tumors, inflammatory, circulatory, metabolic.
Probable dysfunctions: Froehlich's syndrome. Laurence-Moon-Biedl syndrome. Diabetes insipidus. Precocious puberty.
Corporaquadrigemina region:
Possible dysfunction — macrogenitosomia praecox?
Adjacent areas
Mammillary bodies, Tuber cinereum.
Possible influence, less well defined.

It is difficult to diagnose correctly the disturbances which might be due to dysfunction of the hypophysis. This is true (1) because both hypofunction and hyperfunction of the pituitary may have an associated effect upon the function of the thyroid, adrenals, sex glands and even the pancreas; (2) because there are but few objective signs which are reliable in determining degrees of pituitary function; (3) because hyperfunction may precede hypofunction; (4) because a disturbance of one portion of the pituitary may affect other parts of the gland; and (5) because the dysfunction in the pituitary may be secondary to a lesion in the central nervous system.

Hypofunction of the anterior lobe of the pituitary may be manifest as the hypophyseal cachexia which is known as Simmond's disease. Here the clinical picture is remarkable but, fortunately, it is relatively infrequent. It must be differentiated from anorexia nervosa. Dwarfism likewise can be caused by hypofunction of the pituitary. The pediatrician must be certain that the intake of protein, vitamins, minerals and total caloric value is adequate for growth. When the diagnosis has been correctly made before the epiphyses have closed, administration of the growth-hormone preparations, or methyl testosterone, may be beneficial. Progeria is quite rare, but the picture of premature senility is very dramatic and a girl of 14 or 15 may appear as though she were 65 and have the arterial hardening and other features characteristic of that age. The hypofunction which has been assumed as the causative agent for Froehlich's syndrome, in which obesity is combined with immature sexual development, is believed now to be due primarily to a lesion in the hypothalamus. At least the obesity part of the syndrome seems to be definitely

related to malfunction of the hypothalamic area. Fortunately, the obesity can be controlled by dietary regulation, and often the sexual development will be found not to be as seriously limited as had been suspected. Other lesions of the central nervous system which can produce a hypofunction of the anterior lobe are: craniopharyngiomas which arise in the area of the hypophyseal stalk, and tumors or inflammatory conditions in the hypothalamus, the region of the corporaquadrigemina or the third or fourth ventricles. Of these, the craniopharyngiomas have been considered the most common, but lesions of the hypothalamus are assuming more and more importance as the functions and interrelationships of this area become better defined. Such lesions can have varying degrees of influence upon the hypophysis, depending on their exact site, the specific nerve tracts involved and the amount of displacement or pressure. A chromophobic adenoma of the pituitary itself, although at first exerting a specific hyperfunction, later can cause a limitation of certain anterior lobe functions, leading possibly to a generalized hypofunction of the entire hypophysis.

The two types of hypofunction of the hypophysis which should be considered in relation to pediatric problems are gigantism and Cushing's syndrome. Gigantism is due to an overproduction of growth hormone by acidiophilic tumors which are exerting an influence before the epiphyses have closed. Administration of gonadothopic hormone may speed up the process of maturation so that height will not become too abnormal. Accurate evaluation of growth and diagnosis are most important for the pediatrician often will be consulted by anxious parents alarmed by the entirely normal growth spurt which accompanies puberty. Cushing's syndrome is relatively rare and affects chiefly females. It is due to a basophilic tumor producing virilism, but recent work shows that adrenal cortex tumors also can be responsible for this syndrome. The milder degrees of hirsutism, sometimes exhibited by older girls, may be due entirely to adrenal cortex malfunction rather than to disorders of the basophilic cells of the hypophysis.

The only disturbance of pediatric significance due to the posterior lobe of the pituitary gland is diabetes insipidus. This can be caused by hypofunction of the posterior lobe per se, but more often is due to a lesion in the hypothalamus or the connecting nerve pathways.

SEX GLANDS—TESTES

Hypofunction:
- Hypogonadism (eunuchism, castration effect): congenital absence, some cryptorchidism, trauma, infection, atrophy, inflammation, secondary to hypofunction of pituitary or thyroid.
- Gynecomastia: secondary to hypofunction of testes or to adrenal cortex tumor.

Hyperfunction:
- Hypergonadism (precocious development):
  - Hyperplasia—may be secondary to gonadotropic hormone;
  - Tumors testes—adenoma, seminoma (embryonal carcinoma), teratoma, chorioepithelioma, adrenal rests.
  - Adrenal cortex tumor.

Nonendocrine
- Tumors: adenoma, carcinoma, teratoma, chorioepithelioma.
- Inflammatory conditions.
- Malformations.

SEX GLANDS—OVARIES

Hypofunction:
- Infantilism: congenital absence, secondary to cystic degeneration, atrophy, sometimes secondary to dysgerminoma.
- Menorrhagia or irregular menstruation—inadequate gonadotrophin.

Hyperfunction:
- SEXUAL PRECOCITY: hyperplasia, granulosa cell tumor; (osteodystrophia fibrosa).
- Masculinity (rare)—arrhenoblastoma, gynandroblastoma, struma ovarii, adrenal rest.

Nonendocrine
- Tumors: cysts, fibroma, dermoids, teratoma, dysgermionoma (embryonal carcinoma), carcinoma, sarcoma (rare).
- Inflammatory conditions.
- Malformations.

Hypofunction of the testes may vary from the complete form, due to congenital absence or general destruction, to the various subtypes, depending upon more or less extensive failure of the functions of the Leydig cells. The excretion of 17-ketosteroids will tend to be low, but gonadotrophin excretion will be significantly increased. A history of an infectious process often is obtained and even prepuberal mumps may be the responsible factor. The comparable hypofunction in girls, producing infantilism, is usually due to congenital absence or is secondary to cystic degeneration of the ovaries. Lesser degrees of hypofunction are more common but must be evaluated critically on the basis of: (1) the state of development of the secondary sex characteristics; (2) the type of menstrual flow, and (3) the quality of the endometrial tissues when obtained by biopsies at selected times in relation to the menstrual cycle. No attempt should be made to reach a positive diagnosis until the girl is at least 15 years of age. The cyclic use of gonadotropic hormone is very beneficial in correcting such hypofunction.

Gynecomastia may be due to testicular tumors, or tumors of the adrenal cortex, but the common form seen at adolescence is of no special significance and undergoes spontaneous regression.

Sexual precocity is more apt to occur in girls than boys when its etiology lies in the sex glands. Granulosa cell tumors offer a good prognosis if surgical removal is prompt. Differential diagnoses to be considered are: (1) increased gonadotropic

hormone, secreted by the pituitary under the influence of a hypothalamic lesion; and (2) the rare syndrome of osteodystrophia fibrosa, described by McCune and by Albright, in which sexual precocity in girls is linked with unilateral bone lesions and increased pigmentation of extremities. In boys differential diagnoses must include: (1) hyperplasia and tumors of the testes; (2) hypothalamic lesions; (3) macrogenitosomia praecox of midbrain origin; (4) adrenal rests, and (5) androgenic or interrenal tumors of the adrenal cortex. When no correctable pathologic lesion can be discovered for the precocity, it is recommended to give as much growth stimulation as possible, through the use of pituitary hormone, although these children are already tall for their ages. This procedure is advisable since the maturation induced by the precocious puberty brings early closure of the epiphyses and thus limits the period of time wherein growth is possible.

ADRENAL MEDULLA

Hypofunction:
None.
Hyperfunction:
Chromaffinoma (paraganglioma)—rare in children; (intermittent paroxysmal hypertension, secondary effect on cortex).
Nonendocrine:
Ganglioneuroma (Neuroblastoma)—early childhood.
SYMPATHICOBLASTOMA: primitive cells, highly malignant.
Neurocytoma: more differentiated, larger in situ.

ADRENAL CORTEX

Hypofunction:
WATERHOUSE-FRIDERICHSEN SYNDROME: birth injury, sepsis, hemorrhage.
ADDISON'S DISEASE: tuberculosis, atrophy, aplasia, inflammatory, neoplasm (metastatic or primary), hemorrhage, thrombosis, embolism, amyloid.
Hypoadrenia as a clinical condition: malnutrition, sepsis, burns.
Hyperfunction:
Androgenic: hyperplasia, adenoma, neoplasm (hypernephroma); Boys — Macrogenitosomia praecox (Infant Hercules); Girls—Adrenogenital syndrome (pseudohermaphroidism, virilism); (may be associated with cortical insufficiency syndrome).
Interrenal—Basophilism, Cushing's syndrome: hyperplasia, carcinoma.
Transient hyperadrenia: sepsis.
Nonendocrine:
Hypernephroma, adenocarcinoma, adenoma, hyperplasia.

Dysfunction of the adrenal glands may be quite complex because of the different types of tissues present and the multiple functions of the cortex. As with the hypophysis, a hypofunction can coexist with a hyperfunction, or can succeed it. The order of frequency for the various etiologic agents producing adrenal dysfunction in children are: (1) tumors and hyperplasia, (2) hemorrhage, (3) infection, with tuberculosis more common in adults than in children, and (4) atrophy, aplasia, amyloidosis or hyalin degeneration. Diagnoses may be difficult, but the following comprehensive work-up will aid clarification: (1) detailed history; (2) careful physical examination; (3) roentgenograms, after perirenal injection of air, for visualization of the adrenals; (4) pyelograms; (5) skull plates, to evaluate the sella turcica; (6) roentgen rays of the long bones, to determine bone age and possible metastases; (7) blood levels of electrolytes and nitrogenous metabolites; and (8) the urinary excretion of steroid hormones and glucose.

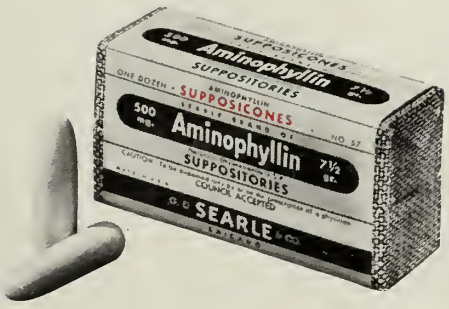
Hypofunction of the adrenal medulla is unrecognized as a clinical entity. Hyperfunction is rare in children, but a chromaffinoma may be responsible for intermittent attacks of hypertension. The ganglioneuromas may be of two types with the more malignant, primitive sympathicoblastoma being more frequent than the well differentiated neurocytoma. Any medullary tumor may have a secondary effect upon cortical function.

Hypofunction of the cortex may be the dramatic emergency of a Waterhouse-Friderichsen syndrome or may be manifest as either the chronic form or the crises of Addison's disease. The Waterhouse-Friderichsen syndrome may be precipitated at any age because of an overwhelming sepsis, such as meningococcemia, or trauma and hemorrhage. It requires prompt diagnosis and strenuous therapeutic measures with massive doses of cortical hormone and saline infusions. Addison's disease is relatively uncommon and occurs more in older children, but an Addisonian-like picture has been observed in young infants. I have seen infants with evidences of hypofunction of the adrenal cortex who also exhibited unequivocal signs of hyperfunction of the androgenic zone. Hypoadrenia, secondary to severe malnutrition, sepsis or burns, is said to occur, but frequently is not recognized.

Hyperfunction of the adrenal cortex may be from two sources. If hyperplasia or neoplasm of the androgenic cells occur, masculinization will take place, with boys undergoing precocious puberty and girls exhibiting virilism. Hyperfunction of the interrenal cortical elements will lead to Cushing's syndrome. Of course differentiation must be made from pituitary basophilism and adrenal rests. Urinary excretion of 17-ketosteroids, both alpha and beta forms, is increased with hyperfunction of the adrenal cortex, and can be used to differentiate between neoplasms in which the beta form predominates, in contrast to hyperplasias which produce more of the alpha form.

In bringing these remarks to a close, it may be commented that disorders of the endocrine glands often are amongst the most distinct and readily recognizable of clinical conditions. One advantage of such a review as the foregoing is to emphasize

for prolonged optimum effect:



Aminophyllin Supposicones

(SEARLE BRAND OF AMINOPHYLLIN SUPPOSITORIES)

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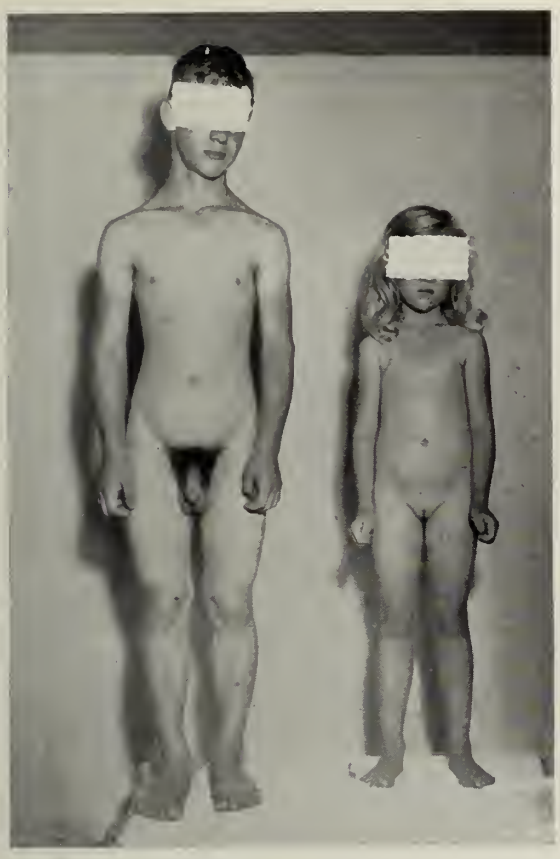
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this fact. On the other hand, in spite of distinct clinical findings, exact diagnosis may be obscure, and with these such an outline as this may be helpful in considering the differential diagnoses. Rather than to do the tempting thing, namely, to cite a case which illustrates relative ease of diagnosis, I have chosen to present an example of a striking clinical picture which still remains uncertain as to its fundamental cause.

CASE REPORT

G. McH. was first seen at the Children's Hospital, University of Texas School of Medicine, Galveston, when he was 7 years old. He was referred by Dr. T. J. McElhenney, of Austin, because of the early development of secondary sex characteristics. This condition was particularly outstanding because of its striking contrast to the development of his twin sister.

The boy weighed five pounds at birth and had a spontaneous delivery. His sister weighed five pounds, ten ounces, and was delivered by forceps. The mother was told that there was one placenta. At the time of delivery it was noted that the boy had external genitalia larger than normal for a newborn male infant and there was a slight growth of pubic hair. During the neonatal period he had no abnormal symptoms. Both infants were breast-fed, with supplementary feedings, were given the usual vitamin therapy and were under the care of a pediatrician.

The boy developed rapidly and always seemed to be ahead of his sister in both motor and mental accomplishments, but the two were well adjusted and played well together and with their older and younger siblings. The parents were never able to detect any sex play or morbid action for their precocious son. During his third year the boy's voice assumed a deep husky quality which had persisted. By the time he was nearing 6 years of age he seemed to be almost twice as large as his twin sister. There were no complications except measles and mumps, and no serious illnesses.

The mother had been informed about the possibility of a pineal tumor. She stated that roentgen rays of the skull taken when the child was 3 years of age gave no evidence of abnormality.

There was no recognized sexual precocity in the family history although the mother was rather vague about one sister who was said to have weighed ten pounds at birth, developed rapidly, and died from a gastric hemorrhage. The four siblings (a boy of 13 years, and two girls, 10 and 1½ years respectively, besides the twin sister) all seemed to be completely normal.

Physical examination revealed a well-developed, quiet, friendly boy of superior intelligence. He spoke in a base voice, had a slightly hairy growth on the upper lip, and had pubic hair and the general development of an adolescent boy of about 16 years of age. He weighed 40.5 kg. and was 144 cm. tall, in contrast to his twin sister who weighed 20.8 kg. and was 119 cm. tall. The extremities, particularly the upper portions of each, seemed slightly short in proportion to the rest of the body. Blood pressure was 110/80. There was a slight systolic murmur, which was probably functional, but no cardiac enlargement. The fundi were perfectly normal, with visual fields entirely within normal limits. No masses were found in the scrotum other than well developed testes. Rectal examination showed prostate size equal to that of a well developed adolescent boy. Neurologic examination gave no evidence of any abnormality.

Roentgenologic studies revealed that ossification centers and epiphyseal closures were about comparable to those for a boy 16 years of age. Intravenous urogram



showed a left kidney pelvis somewhat rotated and displaced, and these findings were confirmed by a retrograde pyelogram. Skull plates showed no significant abnormalities.

Routine blood and urine analyses were essentially normal. The values for serum calcium, phosphorus, phosphatase, total protein, albumin, globulin, sugar and cholesterol were well within normal limits and were entirely comparable to similar determinations done for his twin sister. The urinary excretion of 17-ketosteroids was determined by Dr. J. K. Lamar and was found to be about three times the amount expected for a 7 year old child, but was comparable to the developmental age of the boy, namely, 16 years.

The following more or less summarizes the thinking of the house staff members in regard to this child with the macrogenitosomia praecox: (1) inasmuch as there was no evidence of an abnormal testicular mass, it was felt that this tissue was not responsible. (2) The absence of any localizing neurologic symptoms or signs suggested that a tumor of the central nervous system was not involved. (3) The nature of the clinical picture, with the excess excretion of 17-ketosteroids in conjunction with an apparent abnormality of the left kidney area, indicated that an exploratory operation was in order. It was felt that malignancy was not responsible because the condition had been present a long time and the excretion of beta 17-ketosteroids was not excessively high.

The operation was performed by Drs. R. E. Cone and C. A. Hooks, of the Division of Urological Surgery, who exposed both the right and left kidney areas. The left kidney was found to be rotated, but was entirely normal in size and appearance, and was assumed to be a slight congenital malformation. The left adrenal gland was slightly larger than the right but grossly appeared to be normal tissue. A biopsy was obtained from the right adrenal and was reported by the pathology staff to be normal adrenal tissue from the glomerulosa layer.

The evidence now thus points to absolution of the adrenal glands in causing the precocity in this child, although it may be that adrenal rests could be responsible. We are aware that some central nervous system lesions may not be manifest by localizing signs for many years. It is hoped that continued observation will reveal the true etiologic factors. If we cannot ascribe the abnormality to any specific cause we may have to ask "how early may puberty start?"

THE PLACE AND FUNCTION OF THE TUBERCULOSIS SANATORIUM IN MISSOURI

CHARLES A. BRASHER, M.D.
MOUNT VERNON, MO.

The function of the Sanatorium, when it was first opened in 1907, was primarily custodial, being designed as a place where tuberculous individuals could rest. The function of the Sanatorium at the present time is to treat tuberculous patients, by all modern methods, and to aid other agencies in the control of the disease so that this killer of mankind may be eradicated completely.

I will speak not only of the Sanatorium's place in Missouri, but of any sanatorium as an integral part of a county or state which it may serve. The sanatorium should be thought of as the hub of the wheel from which the spokes that radiate outward are the highways whereby the services of the hospital may reach the people it is designed to serve. This requires that the hospital not only serve as a clinical entity in the active treatment of tuberculosis, but the sanatorium must serve in many other capacities. The sanatorium service, the hub of the wheel, must be coordinated with the rim, that is, the Division of Health, the Controller of Tuberculosis and various workers in city and county agencies in case finding and follow-up, and in tuberculosis control work. There must be cooperation with the various social service agencies and rehabilitation departments. This integration might be thought of as the iron tire binding the whole together into a wheel that will turn and function properly.

The sanatorium must broaden its view in considering tuberculosis, not only from a clinical standpoint but as related to public health and education of the public, although the active treatment of tuberculosis will continue to be one of its main functions.

Not only must the disease of the patient be treated but the patient as a whole must be treated, considering what tuberculosis has done to his psychic personality and also keeping in mind the economic angle and what tuberculosis has done to the patient's family. One must educate the patient, not only regarding his own problem, but also educate him and his family as to tuberculosis. One may not be able to make a patient happy because he has tuberculosis, but perhaps one can teach him to understand what he is up against in combating tuberculosis and inspire him to undertake the right kind of plans as to future activities. Many individuals who enter tuberculosis sanatoria in which there are adequate rehabilitation services are better, more useful citizens after completion of their treatment than they were before admission. When I was visiting Montefiore Country Sanatorium in New York I was told about the case of a day laborer who was admitted to the sanatorium and received active treatment for tuberculosis. When he was about ready for some exercise and in condition to increase his activity, they tried out his skills and talents in various prevocational workshops. This not only gave him an opportunity to do some constructive work while increasing his work tolerance but also enabled him to know in what direction his skills might lie while building up a work tolerance. He became interested in plastics and after being discharged from the sanatorium he took further training in this field under the outside rehabilitation service. This individual was able to develop a certain type of adhesive tape which could be used by people who were allergic to other adhesive tapes and made a small fortune. He probably would never have done this if it had not been for the opportunity to receive active treatment for his tuberculosis and if a rehabilitation program had not been active in the hospital.

One can educate the patient from a public health standpoint and tell him of the menace of the tubercle bacilli to his family and to others. One can teach him that he can get well and stay well, that

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there are many things worse than tuberculosis.

A part of the education of the patient in the sanatorium may consist also of occupational therapy. One can arrange to occupy the mind of the patient while he is in bed and keep him from running around and spreading disease in his own lung fields. One can keep the patient from worrying and leaving against advice. One can see that rest and activity as prescribed by the physician is carried out.

The sanatorium can provide all modern forms of special treatment such as collapse therapy surgery in the form of pneumothorax, thoracoplasty and lobectomy. The function of this therapy is to arrest the disease so that the patient will become negative (that is, not infectious) so that he may become a useful, self-sustaining citizen who will not be a menace to his family and the community in which he lives. With the proper coordination of the social and health agencies in caring for the family and with adequate treatment of the patient and vocational therapy and adequate follow-up, one often will find that the patient is a better individual than the one who entered the hospital.

One of the main functions of the sanatorium is to segregate the active and positive sputum cases. One should have strong isolation or quarantine laws which would compel the patient to remain in the sanatorium until the proper authorities approve his release. An alternative which is thought better by some workers in tuberculosis is to approach the problem through an educational program starting with the family physician and the patient. The patient has more confidence in the family physician and he should not give the patient a false sense of security by minimizing the dangers of tuberculosis and telling him he will have to stay in the sanatorium only three to six months just to encourage him to enter. When the patient finds out differently, it is a jolt. The family physician should tell him just what he is up against unless, perhaps, it is a case in which the patient should not know of an unfavorable prognosis. He should be taught that tuberculosis is a chronic disease, that three-fifths of the cure is up to the patient and his attitude and that it may take a year or years to obtain the status of an arrested case.

In anticipation, the Missouri Sanatorium is preparing a booklet to acquaint the doctors in general practice with the facilities of the Sanatorium and the Sanatorium routine. It will help acquaint the patient with the problems he will encounter from the time he enters the front door of the Sanatorium until he leaves.

In speaking of treatment, I would like to repeat that tuberculosis is a long drawn out, chronic disease. There is no short cut to health and the patient and the family should realize that the treatment and rehabilitation of the patient will be a matter of a year or years and not just a few months, depending upon the amount of disease present when the patient starts treatment and the response of the patient to treatment.

Speaking of the period of treatment, too much stress cannot be laid on the importance of early diagnosis and early treatment. From an economic, social and public health standpoint, it would certainly seem that it is better medicine to try to find the early cases than to have from 60 to 70 per cent of sanatorium admissions enter with far advanced tuberculosis, many of them hopeless cases.

While the object of treatment of tuberculosis is to obtain an arrest of the disease, the efforts of the sanatorium are lost in many cases if the individual goes out of the hospital to the same environment and takes up the hard labor which originally contributed to his breakdown. So, another function of the sanatorium is to provide occupational and pre-vocational therapy to aid the patient in finding out his skills and aptitudes and start him on the road to rehabilitation. This can be done through the establishment of various craft shops and coordinating the work of the rehabilitation director and the occupational therapist with teachers, librarians and the medical staff.

A rehabilitation program is being started at the Missouri State Sanatorium which it is hoped will bear much fruit. It is well known that when an adequate rehabilitation program is carried out in a sanatorium, coordinated with the State Rehabilitation Department, that fewer patients leave the sanatorium against medical advice; also that there are a great many less readmissions from a group of rehabilitated patients than from a group of nonrehabilitated patients.

Although the Missouri State Sanatorium has not had a Director of Rehabilitation or an organized set-up for rehabilitation, the medical staff has undertaken considerable rehabilitation work among the patients in that we train the patients who are on activity to become nurses, orderlies, dental assistants, laboratory assistants, assistant roentgen ray technicians. There is also some craft work in the form of leather craft. A modern library is available to the patients with a full time librarian (a former patient) who takes books to the various wards at least once a week. There are moving pictures weekly for the patients and Sunday church services, both Catholic and Protestant, and Sunday School classes during the week also are offered to the patients. The employment of practical nurses and orderlies from the arrested patients enables them to return to work under suitable conditions and under close medical observation so that in any case of exacerbation of the disease, the development will be discovered promptly while it is amenable to treatment.

As has been previously mentioned, the administration of the sanatorium should realize that it is better public health work and better medicine to find early cases of tuberculosis than to devote the time of the hospital to the treatment of so many far advanced and hopeless cases. The staff of the

sanatorium should cooperate with the Controller of Tuberculosis and the various health agencies. A sanatorium staff, expert in diagnosis and clinical management of tuberculosis, can be of help to the Division of Health in assisting in the management of clinics and in many other ways. The staff may read chest roentgen rays and advise as to treatment of cases found. If 35 to 70 mm. films are used, from 400 to 600 films can be read in a day. Suspicious cases can be screened out and later sent to the sanatorium out-patient department for roentgen ray on 4 by 10 or 14 by 17 films. The sanatorium, through adequate records, may inform the Controller of Tuberculosis as to individuals admitted and discharged from the hospital and as to whether or not such cases were arrested or open cases. Incidentally, a more thorough reporting of new cases of tuberculosis to the Division of Health by the physician in private practice will greatly aid that department in its tuberculosis control work. The sanatorium, through its out-patient department, may aid in the control of tuberculosis by chest roentgen rays of contacts, such as members of the families of patients and other suspicious cases sent by the various agencies; also by roentgen raying all school teachers as a part of a program for the protection of children in the schools; also by providing routine roentgen rays for former patients at periodic intervals.

When it is realized that an average of 600 patients are being discharged from the Sanatorium each year and that many of these return to the Sanatorium for their routine check-ups, it is easy to understand why the work of the out-patient department is gradually increasing. In the course of ten years, this means that there are approximately 6,000 patients who have gone out of the hospital to whom the services of the out-patient department are available.

Another function of the sanatorium and its staff is on an educational basis through contact with the individual patient and his relatives. A large majority of individuals have no knowledge of tuberculosis and what it may entail until one of their family has tuberculosis and enters the Sanatorium. The sanatorium staff may also help in tuberculosis education by taking active part in the tuberculosis programs that come up in their various county medical societies. They may lecture before civic groups, show motion pictures such as one now available from the United States Public Health Service and various hospital associations showing the value of the routine chest film on all hospital admissions.

The sanatorium can arrange to train physicians in general practice to give collapse therapy, by giving training in the hospital for periods of one to three months. One of the main problems in the rehabilitation and post hospital care of patients is that many of them live in isolated areas where pneumothorax treatments and other necessary treatments and observation are not adequate or not available. If physicians throughout the state could be trained to give collapse therapy, many of the patients could shorten their stay at the Sanatorium. This would mean that the hospital would have more beds available for patients applying for admission and waiting lists would be diminished. It seems this would be a valuable public health measure.

The U. S. Public Health Service now has funds to assist general practitioners in obtaining special training, although many physicians cannot take advantage of this as they are unable to leave a busy practice.

The hospital may train Public Health nurses and other nurses in tuberculosis nursing.

Another method of education is by the publication of a sanatorium newspaper, such as the San-O-Zark published by the Missouri State Sanatorium. Recently mass roentgen ray surveys and routine chest films on all patients admitted to all hospitals has been publicized.

The sanatorium should function as a Tuberculosis Health Center for surrounding communities. This goal can be more efficiently realized if the area served is not too large. Some repetition is found in the following, but I would like to stress that the sanatorium should be the leading light and guiding hand to the area it serves in tuberculosis problems. It should work with physicians, the local tuberculosis association, the Public Health authorities and with the community in finding, treating and in the follow-up of cases of tuberculosis so that the end result may be that tuberculosis will no longer be found. The sanatorium should teach that the earlier tuberculosis is found, the easier it is to arrest and that there are many diseases much worse than tuberculosis. It should and has been teaching that large groups can be reached through mass roentgen ray: of industrial groups, of all hospital admissions, of all contacts of active cases, of all school teachers and of school children more than 12 years of age who have a positive tuberculin reaction. The sanatorium also should teach that individuals of families who have active tuberculosis should have roentgen rays repeated at intervals. Thinking now is in terms of mass roentgen ray surveys and case findings which will include the entire community instead of just certain groups. It must also be realized that just finding the active cases of tuberculosis is not enough. There must be a positive program whereby the patient can receive adequate treatment, guidance and post hospital care.

If, as planned, smaller hospitals are set up in different areas of the state, they might have difficulty in finding surgeons and hospital facilities for all needed surgery. However, as more beds are set up in the state, more facilities at the Missouri State Sanatorium would be available for surgical treatment, to serve the smaller out-state hospitals. Tuberculosis can be eradicated and if it should come in my time, I shall gladly sit under an Ozark apple tree and whittle, hoping to receive an old age pension.

Missouri State Sanatorium.

ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 2, February, 1947.

WHAT IS EARLY TUBERCULOSIS?

Millions of people in the United States have been examined by means of mass radiography since the early days of World War II. This new technique is rapidly achieving the long-sought goal of X-ray examinations of the lungs of the majority of adults in our country. This objective can easily be reached within five years if all our resources are mobilized and a national plan is executed with speed and efficiency.

Yet a word of caution must be given to prevent indiscriminate diagnoses of pulmonary tuberculosis on the basis of X-ray examination alone.

Specialists in tuberculosis rightly insist that, before final diagnosis, every attempt be made to obtain sputum specimens, and that such specimens be submitted to meticulous examination by direct smear of actual or concentrated sputum and, if this be negative, by culture or guinea pig inoculation. If sputum is not present, a stomach washing should be made and the contents examined by appropriate culture methods in laboratories that employ skilled bacteriologists. In cases of pleural effusion, the same procedure should be followed. This is possible only in an accredited laboratory which has been certified by some impartial central laboratory.

If, after such diligent search, no tubercle bacilli are found, the diagnosis should be limited to "suspected tuberculosis." This does not mean that many of the shadows found on the survey films are not the residue of a tuberculous process that once was active. Nor does it mean that the person should not be followed for several years to observe new evidences of disease activity. Nevertheless, to be scientific in our practice of medicine and to avoid needless distress, we should refer to such persons as "suspects" until such time as tubercle bacilli can be demonstrated. A firm stand of this sort should clarify confused thinking in mass radiography programs. To put it simply and candidly: do not diagnose pulmonary tuberculosis on the basis of an original X-ray film alone.

One must study "suspected" cases by means of a careful history, including recent or present symptoms which are characteristic of tuberculosis. For differential diagnosis it is essential to employ the tuberculin test, using the intracutaneous method properly applied and interpreted by an experienced person. In the presence of a negative tuberculin test, other reasons than tuberculosis must be found for suspected shadows, in spite of characteristic location and configuration. Indeed, even when a cavity is demonstrated on the film, a negative tuberculin test demands that some etiological factor other than tuberculosis be sought as the cause.

The same criteria used in diagnosis must be applied even more rigidly in the treatment of tuberculosis, especially sanatorium care and chest surgery. Persons whose chest films show shadows, discovered by mass radiography, should not be rushed into the sanatorium simply on the evidence of X-ray findings. A period of follow-up by the physician or clinic will determine the presence or absence of tubercle bacilli in the sputum, gastric contents, or pleural fluid.

Because a social stigma unfortunately attaches to a diagnosis of tuberculosis, and personal harm through mental anguish can occur, restraint should be practiced in naming the disease before its actuality can be proved. Even those persons whose diagnoses are confirmed will profit by a period during which they may become accustomed to the idea that they have a serious disease. Such a practice will keep expensive sanatorium beds free for patients who are truly ill and will avoid unnecessary exposure of nontuberculous persons sent to sanatoriums by mistake.

Persons who have tuberculosis which requires sanatorium care cannot be greatly harmed by short delay of treatment; in many instances the disease has been present for some time. The chest surgeon, too, should wait and watch with patience until tubercle bacilli are demonstrated as present in the lungs. This is particularly true of the too easily performed procedure of pneumothorax. Before the normal physiology of respiration is permanently changed by surgical attack, there must be strong evidence that such change and its attendant loss of function will be compensated for by the patient's future control of active disease.

These is yet no evidence in medical literature that the minimal lesion case with negative sputum, negative gastric lavage, or no sputum is benefited by sanatorium care. Rather it is a more realistic procedure to seek out and hospitalize the original positive sputum case which infected the minimal case so recently discovered.

We have placed emphasis in these remarks on the asymptomatic case with negative sputum or negative gastric contents. We must, however, be aware of and watch for "indolent" early tuberculosis. Caution is called for in the follow-up of early cases of tuberculosis that present vague findings and symptoms that are often difficult to elicit and interpret. This is the type of tuberculosis which British chest specialists call "indolent early tuberculosis," of whose prognosis we know little. Often such patients, when placed under sanatorium care, recover rapidly without surgical or special aid. Others deteriorate in the sanatorium in spite of the most modern expert medical skill and the finest facilities. One wonders if both types of cases would not have pursued the same courses undiscovered and unattended. We do not know why the body responds so indolently in these cases. Intensive investigation should help us find the answer, so that our follow-up program can be realistically di-

rected and thereby be made more effective.

To sum up, no person should be labeled with the diagnosis of pulmonary tuberculosis on the basis of incomplete evidence. "Suspected tuberculosis" on the X-ray film must be corroborated by a positive tuberculin test and by positive bacillary findings. Let treatment be delayed and deliberated until all the facts are in and all the evidence is evaluated. If such a practice is followed, physicians will gain in accuracy and skill of diagnosis, and limited hospital resources will be conserved. Most important of all, the person suspected of having tuberculosis will be assured thorough study and scientific diagnosis and will be treated for tuberculosis only if the disease is actually present. Judgments based on positive and complete evidence will give a final verdict that protects the individual and the public health.

What Is Early Tuberculosis? Herman E. Hilleboe, M.D., Public Health Reports, September 6, 1946.

BOOK REVIEWS

AMBULATORY PROCTOLOGY. By Alfred J. Cantor, M.D., Associate Proctologist, Kew Gardens General Hospital, Long Island, New York; Formerly Assistant Attending Gastroenterologist, Queens General Hospital, and Assistant Adjunct Proctologist, Hospital for Joint Diseases, New York. With a Foreword by Beaumont S. Cornell, M.D., Editor, American Journal of Digestive Diseases. Paul B. Hoeber, Inc. Medical Book Department of Harper & Brothers. New York and London. 1946. Price $8.00.

In reviewing this 500 page book on "Ambulatory Proctology," one cannot but comment on the author's viewpoint. He advocates and urges the performance of extensive hemorrhoidectomy, fistulectomy, and rectal prolapse, and many other operations on an office ambulatory basis.

This attitude of mind which takes cognizance of the mechanical and physical equipment of the physician's office, rather than the hazard to the patient, is unsurgical and dangerous, to say the least. Those attempting these operations as an office procedure would do well to pause and think of his patient before embracing such frankly dangerous procedures.

The author has included a section on pediatric proctology which is missing in most books. The material encompassed in this volume is commendable and the discussions of the various proctologic disorders are well presented. He lists in sequence the steps to be taken in the treatment of the various disorders.

The illustrations are good. One half of the book is devoted to medical diseases of the rectum and colon. An up-to-date bibliography is given at the conclusion of each chapter. W. G. H.

PATHOLOGY OF TROPICAL DISEASES. An Atlas. By J. E. Ash, Colonel, M.C., U.S.A., Director Army Institute of Pathology, Army Medical Museum; and Sophie Spitz, M.D., C.S., A.U.S., Pathologist, Army Institute of Pathology, Army Medical Museum. 941 illustrations, 15 in color, on 257 plates. Philadelphia and London: W. B. Saunders Company. 1945. Price: $8.00.

This book is a product of the Army Institute of Pathology, Army Medical Museum and is representative of the abundant material in this institution. Some of the material within the book is from civilian sources but most has accumulated from the tropical regions through the institute.

The general plan of the book is in atlas form with innumerable photographs, including both gross and microscopic. Many of the photographs are excellent, including some in color. The contents of the book include all forms of tropical diseases, both common and rare. The diseases are presented in standard textbook fashion, beginning with definition, epidemiology, clinical features and pathology. It is the prime purpose of the book to stress the latter feature which is done in every disease. The pathologic descriptions include both gross and histologic features. At the termination of each of the diseases under discussion, references are available for further study.

The book is clear and concisely written, intelligent, and informative. In view of the widespread movements of troops and individuals returning from service, this is a timely publication. A. E. U.

EYE MANIFESTATIONS OF INTERNAL DISEASES, by I. S. Tassman, M.D., Associate Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia; Attending Surgeon, Wills Hospital, Philadelphia, Pa. With 243 Illustrations, including 24 in color. Second Edition. C. V. Mosby Company, St. Louis, 1946. Price $10.00.

With the theme that "ophthalmology is a branch of internal medicine" the author has brought out this second edition of a most useful and readable text. In the first portion of the book the chapters deal exclusively with eye conditions, presented in a manner that is simple and concise. The second part presents the essential description of the eye manifestations of different diseased conditions of a general nature such as tuberculosis, syphilis and vascular disorders. Additions have been made in the second edition so as to include ocular allergy, epidemic keratoconjunctivitis, Hurler's disease, osteopetrosis, lynphogranuloma venereum, toxoplasmic encephalomyelitis and others.

Some new illustrations have been added and, while the black and white ones are not entirely clear, the colored plates add much to the understanding of the text. The format is good and a comprehensive index completes the book. The fact that a second edition has been wanted after four years would seem to mean that the value of this volume is well appreciated.

L. L. M.

OPHTHALMOLOGY IN THE WAR YEARS, edited by Meyer Wiener, M.D., Professor of Clinical Ophthalmology, Washington University School of Medicine; Honorary Consultant in Ophthalmology, Bureau of Medicine and Surgery, United States Navy. Volume 1 (1940-1943). The Year Book Publishers Inc. 1946. Price $13.50.

This book, a compilation of ophthalmological articles published in the journals from 1940 to 1944, was edited by Dr. Meyer Wiener. The choice of authors was exceptionally well done and the literature represented is exhaustive. The idea, of which this book is the first of two volumes, began as a suggestion for a review of the literature published during the war years, when so many were in service and unable to follow the journals.

The bibliographies are conclusive and the contributors have not only read thoroughly but have assembled their material in a readable and facile manner. All authors that Bellows mentioned stated that phlyctenular conjunctivitis was a tuberculous manifestation. Barkan's handling of glaucoma is masterful. The biggest contributions in this field were on gonioscopy.

One misses the illustrations that usually accompany a medical book and at first blush the need for such a volume may be questioned but as one reads, the material becomes more and more interesting. It can be recommended heartily to all and the second volume is eagerly awaited. A. J. B.

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For your friend may have had a type of infection against which sulfa is often miraculously effective. *Your* sore throat may be of a kind on which sulfa has no effect whatever.

In any case, taking sulfa drugs without the guidance of a physician is a far more hazardous procedure than most people realize.

If you take sulfa for a minor ailment, for instance, you may become sensitive to the drug itself. Then if you should later have a serious illness, your doctor might find it unwise to prescribe sulfa for your case.

When you dose yourself with sulfa, you may also run the risk of kidney ailments, anemia, and other blood diseases. This is why in many states the law specifies that sulfa drugs may be dispensed only on a physician's prescription.

Your doctor is the only person competent to judge whether your ailment is one which responds to treatment with sulfa, and whether your ailment is serious enough to warrant the use of sulfa. He alone knows which of the various sulfa drugs to use, how much to give, what precautions to take.

SEE YOUR DOCTOR. What is true of treating illnesses with sulfa is true of any form of treatment. Don't take a friend's suggestion. Don't prescribe for yourself. At the first sign of illness see your doctor. He is the one person qualified to advise you on the vital questions which concern your health.

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of the
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FEBRUARY, 1947

EDITORIALS

ANNUAL SESSION

The 89th Annual Session of the Missouri State Medical Association will convene in Kansas City, March 30, 31, April 1, 2, 1947. On Sunday, March 30, there will be a dinner in the evening for secretaries and presidents of county medical societies. The work of the session will begin on Monday morning, March 31, with the House of Delegates meeting in the Little Theater in the Municipal Auditorium. Scientific work will be presented Monday afternoon, all day on Tuesday and until the House of Delegates convenes at 2:30 p. m. on Wednesday. The House of Delegates will have a recessed session at 4:00 p. m. on Monday afternoon. Schedule of activities during the session and the scientific program, which is not quite complete, appear on page 110.

Scientific and commercial exhibits and registration will be in the Arena of the Auditorium. All sessions of the House of Delegates and the scientific sessions will be in the Little Theater in the Auditorium. Dinner and luncheon meetings will be held at the President Hotel.

Members are urged to make hotel reservations well in advance of the session, writing direct to the hotel of their choice.

The Missouri Chapter of the College of Chest Physicians and the Missouri Chapter of the American Trudeau Society will have a scientific meeting on Sunday, March 30, to which all physicians are invited. The program appears on page 113.

Committees for the session follow:

General Committee on Arrangements: C. Edgar Virden, M.D., Kansas City, Chairman; R. W. Kennedy, M.D., Marshall; H. E. Petersen, M.D., St. Joseph.

Executive Committee: Rex L. Diveley, M.D., Chairman; C. Edgar Virden, M.D,, R. Lee Hoffmann, M.D.

Exhibits: J. Milton Singleton, M.D., Chairman; Richard Twyman, M.D., Russell W. Kerr, M.D., Stanley F. Morest, M.D.

Hall and Arrangements: Max Goldman, M.D., Chairman; Francis A. Carmichael, Jr., M.D., Waller G. Hook, M.D.

Publicity: Vincent T. Williams, M.D., Chairman; Richard B. Schutz, M.D., Paul N. Johnstone, M.D.

Entertainment: John S. Knight, M.D., Chairman; Charles K. Shofstall, M.D., John A. Growden, M.D.

Finance: Thomas A. Kyner, M.D., Chairman; Claude F. Hunt, M.D., Orval R. Withers, M.D.

Hotels: Hubert M. Parker, M.D., Chairman; D. A. Williams, M.D., John W. Walker, M.D.

Past Presidents' Banquet: James R. McVay, M.D., Chairman; A. W. McAlester, Jr., M.D., Frank I. Ridge, M.D., G. Wilse Robinson, Sr., M.D., A. N. Lemoine, M.D., Fred B. Kyger, M.D., H. L. Jones, M.D., A. E. Eubank, M.D., B. Landis Elliott, M.D.

USE OF PENICILLIN

Paradoxically, one of the dangers of the use of penicillin is its comparative freedom from toxic reactions. Because of the false sense of security which may occur in the use of this effective therapeutic agent, it is well to review, as Morgenson has done (J. A. M. A. 32: 915, Dec. 14, 1946), the toxic reactions accompanying penicillin therapy.

The antigenic or allergic reactions which may result from penicillin are usually either dermal (vascular) or epidermal. Because one type of sensitivity may exist independently of the other, it is often possible to administer parenteral or local penicillin in spite of evidence of sensitivity in the other tissue.

Sensitivity of either type justifies an attitude of alertness which will at least raise the threshold of suspicion. Though parenteral administration may be continued in spite of mild allergic symptoms, signs of dermatitis following the use of penicillin salves should cause immediate discontinuance.

Other reactions are those resulting from therapeutic shock (Jarisch-Herxheimer) and those following intrathecal administration.

NEWS NOTES

J. A. Ossman, M.D., Jefferson City, was elected president and chief of staff of St. Mary's Hospital, Jefferson City, at a meeting of the staff on December 11. Other officers were vice president, R. P. Dorris, M.D.; secretary and treasurer, E. R. Bohrer, M.D.; executive committee, Marshall W. Kelly, M.D., H. W. Maxey, M.D., and F. W. Gillham, M.D.

Hubert M. Parker, M.D., and Harold Passman, M.D., Kansas City, were speakers on the program of the Health and Child Development Institute of the Child Health Division of the Department of Health, on January 7. Dr. Parker spoke on "Medical Problems of the Middle-Aged Woman," and Dr. Passman spoke on "The Diabetic of All Ages."

The following physicians were received into fellowship in the American College of Surgeons at a meeting held in Cleveland on December 20: Wallace H. Graham, M.D., John C. Howard, Jr., M.D., Frank L. Feierabend, M.D., Leo Pollock, M.D.,

Kansas City; J. Frank Jolley, M.D., Mexico; Marshall W. Kelly, M.D., Jefferson City; Robert W. Bartlett, M.D., Brian B. Blades, M.D.; Roy V. Boedeker, M.D., Roland S. Kieffer, M.D., Alfred M. Large, M.D., Douglas A. Ries, M.D., Henry G. Schwartz, MD., William C. Weinsberg, M.D., St. Louis.

A. N. Lemoine, M.D., Kansas City, was elected president of the Harvard Club in Kansas City at a meeting in December.

Robert W. Bartlett, M.D., St. Louis, presented an address on "The Management of Colostomies" at a meeting of the Western Surgical Association in Memphis on December 6.

LEGISLATION

The 64th General Assembly of the Missouri State Legislature convened on Wednesday, January 8. It is the expressed hope of the officers and members of the Assembly that their necessary work may be completed not later than July 1.

Officers chosen are as follows:

Senate:

President Pro Tempore, M. C. Matthes, Hillsboro, Republican.

Majority Floor Leader, R. Jasper Smith, Springfield, Republican.

Minority Floor Leader, Emery Allison, Rolla, Democrat.

House of Representatives:

Speaker of the House, Murray E. Thompson, Marshfield, Republican.

Vice Speaker, Joe H. Miller, Carrollton, Republican.

Majority Floor Leader, R. J. King, St. Clair, Republican.

Minority Floor Leader, Roy Hamlin, Hannibal, Democrat.

The House Committee on Public Health is composed as follows:

J. A. Gray, M.D., Watson, Chairman, Republican.
Birtle Huff, Versailles, Republican.
Clara A. Speer, Kansas City, Republican.
O. K. Parsons, Crane, Republican.
W. D. Cruce, El Dorado Springs, Republican.
C. E. Rearick, Pleasant Hill, Republican.
Wallace M. Pearson, Kirksville, Republican.
William Pittman, Amity, Republican.
John R. Rickhoff, St. Louis, Republican.
Lawrence K. Roos, St. Louis, Republican.
L. D. Greene, M.D., Richmond, Democrat.
Fred A. Neel, Huntsville, Democrat.
Cecil T. Taylor, Shelbyville, Democrat.
Elmer C. Henderson, Fulton, Democrat.
Millard T. King, Licking, Democrat.

The Senate Committee on Public Health and Welfare is composed of the following:

W. R. Walker, Carrollton, Chairman, Republican.
Ralph Erdwin, Concordia, Republican.
W. H. Robinett, Mountain Grove, Republican.
Frank M. Frisby, Bethany, Republican.
William H. Burden, Joplin, Republican.
David E. Horn, St. Louis, Republican.
Floyd R. Gibson, Independence, Democrat.
E. J. Hogan, Jr., St. Louis, Democrat.
L. D. Joslyn, Charleston, Democrat.
Anthony M. Webbe, St. Louis, Democrat.
Ed L. Caldwell, Perry, Democrat.
M. C. Matthes, Hillsboro, Republican.

EIGHTY-NINTH ANNUAL SESSION
MISSOURI STATE MEDICAL ASSOCIATION

March 30, 31, April 1, 2, 1947
Kansas City

TIME AND PLACE OF MEETINGS

Sunday, March 30

4:00 p. m. Meeting of the Council, President Hotel.
6:00 p. m. Dinner for Secretaries and Presidents of County Medical Societies, President Hotel.

Monday, March 31

9:30 a. m. House of Delegates. Little Theater, Municipal Auditorium.
11:00 a. m. Inspection of commercial and scientific exhibits by Delegates.
12:00 noon. Maternal Welfare Committee Luncheon meeting. Herman W. Johnson, M.D., Houston, Texas, speaker. President Hotel.
1:15 p. m. Scientific Session. Little Theater, Municipal Auditorium.
2:40 p. m. View of exhibits. Arena, Municipal Auditorium.
3:00 p. m. Scientific Session. Little Theater, Municipal Auditorium.
4:00 p. m. House of Delegates. Little Theater, Municipal Auditorium.
7:00 p. m. Annual Banquet. (Program incomplete.) President Hotel.

Tuesday, April 1

9:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
10:30 a. m. View of Exhibits. Arena, Muncipal Auditorium.
11:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
1:30 p. m. Scientific Session. Little Theater, Municipal Auditorium.
3:00 p. m. View of exhibits. Arena, Municipal Auditorium.
3:30 p. m. Scientific Session. Little Theater, Municipal Auditorium.

Wednesday, April 2

9:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.

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11:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
1:00 p. m. Scientific Session. Little Theater, Municipal Auditorium.
2:30 p. m. House of Delegates. Little Theater, Municipal Auditorium.
4:00 p. m. Meeting of the Council. Little Theater, Municipal Auditorium.

SCIENTIFIC PROGRAM OF GENERAL MEETINGS

General Meeting

Monday, March 31, 1947, 1:30 p. m.—Little Theater, Municipal Auditorium

1:30 p. m. How the Veterans Administration Will Function Outstate. . . . Curtis H. Lohr, M.D., St. Louis.
1:50 p. m. The Veterans Administration Residency Training Program. . . . Frank Walton, M.D., St. Louis.
2:10 p. m. The Medical Care of the Veteran. . . . Paul Hawley, M.D., Chief Medical Officer, Veterans Administration, Washington, D. C.
2:40 p. m. View of Exhibits. Arena, Municipal Auditorium.
3:00 p. m. Uterine Ring Dystocia . . . Herman W. Johnson, M.D., Houston, Texas.
3:30 p. m. Diagnosis and Treatment of Bronchial Lesions. . . . Arthur Olsen, M.D., Rochester, Minn.
4:00 p. m. House of Delegates.

General Meeting

Tuesday, April 1, 1947, 9:00 a. m.—Little Theater, Municipal Auditorium

Symposium on Poliomyelitis, Frank D. Dickson, M.D., Kansas City, Chairman

9:00 a. m. Report on 1946 Epidemic of Poliomyelitis in Missouri. . . . Frank D. Dickson, M.D., and Asa Jones, M.D., Kansas City.
9:30 a. m. Etiology, Immunology and Pathology of Poliomyelitis. . . . Ferdinand Helwig, M.D., Kansas City.
10:00 a. m. Diagnosis and Treatment of Poliomyelitis in the Acute Stage. . . . Russell J. Blattner, M.D., St. Louis.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.
11:00 a. m. Treatment of the Convalescent and Chronic Stage of Poliomyelitis With an Evaluation of the "Hot Pack" Treatment. . . . H. R. McCarroll, M.D., St. Louis.
11:30 a. m. Summary, Questions and Discussion.

General Meeting

Tuesday, April 1, 1947, 1:30 p. m.—Little Theater, Municipal Auditorium

Symposium on Chemotherapy

1:30 p. m. Introduction of Subject.
2:00 p. m. Chemotherapy as Used in Surgical Conditions. . . . William A. Altemeier, M.D., Cincinnati.
2:30 p. m. Chemotherapy as Used in Medical Conditions. . . . Donald R. Nichols, M.D., Rochester, Minn.
3:00 p. m. View of Exhibits. Arena, Municipal Auditorium.
3:30 p. m. Chemotherapy in the Treatment of Syphilis and Gonorrhea.
4:00 p. m. Summary, Questions and Discussion.

General Meeting

Wednesday, April 2, 1947, 9:00 a. m.—Little Theater, Municipal Auditorium

Symposium on Nutritional Deficiencies

9:00 a. m. Nutritional Deficiencies As a Cause of Disease. . . . Wendell N. Griffith, Ph. D., St. Louis.
9:30 a. m. Nutritional Diseases. . . . William Middleton, M.D., Madison.
10:00 a. m. Some Nutritional Pitfalls in General Hospitals. . . . Garfield G. Duncan, M.D., Philadelphia.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.
11:00 a. m. Psychomatic Lesions. . . . Edwin Gildea, M.D., St. Louis.
11:30 a. m. Psychomatic Problems—Postwar.

General Meeting

Wednesday, April 2, 1947, 1:00 p. m.—Little Theater, Municipal Auditorium

1:00 p. m. Symposium on Industrial Medicine.
2:30 p. m. House of Delegates.

MISCELLANY

PROGRAM ON DISEASES OF THE CHEST

March 30, 1947, President Hotel, Kansas City

Sponsored by the Missouri Chapter of the College of Chest Physicians and the Missouri Chapter of the American Trudeau Society.

9:00 a. m. Some Problems in Unsatisfactory Pneumothorax . . . John Kalisch, M.D., Koch.

10:15 a. m. Mistaken Diagnoses of Tuberculosis . . . Rubin A. Kaplan, M.D., and Louis Levine, M.D., Excelsior Springs.

11:00 a. m. Phrenic Crush—Twenty Consecutive Cases . . . Edward W. Laboe, Howell, Mich.

12:30 p. m. Missouri Chapter of College of Chest Physicians luncheon meeting. Election of officers.

2:00 p. m. Pulmonary Calcification and Histoplasmosis . . . M. L. Furcolow, M.D., and H. L. Mantz, M.D., Kansas City.

2:45 p. m. Streptomicin Therapy in Bronchial Tuberculosis . . . Arthur Olsen, M.D., Rochester, Minn.

3:45 p. m. Epidural Anesthesia in Chest Surgery . . . Fred Fujikawa, M.D., Mount Vernon.

7:00 p. m. Missouri Tuberculosis Association dinner meeting.

8:30 p. m. X-ray Conference (physicians invited to bring films) . . . W. W. Buckingham, M.D., Kansas City.

All members of the Missouri State Medical Association are invited to attend this meeting and take part in the discussions.

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for February and March, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

February 5: Miscellaneous.
February 7: Gynecologic and Genitourinary.
February 12: Skin.
February 14: Breast.
February 19: Gastrointestinal.
February 21: Cervix.
February 26: Skin.
February 28: Head and Neck.
March 5: Miscellaneous.
March 7: Gynecologic and Genitourinary.
March 12: Skin.
March 14: Breast.
March 19: Gastrointestinal.
March 21: Cervix.
March 26: Skin.
March 28: Head and Neck.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

H. E. PETERSEN, ST. JOSEPH, COUNCILOR

Clay County Medical Society

The Clay County Medical Society met at the Excelsior Springs Hospital, Excelsior Springs, December 20. The members were entertained for dinner by Mrs. Margaret Sharp, superintendent of the hospital.

Ira Lockwood, M.D., J. W. Walker, M.D., A. B. Smith, M.D., M. W. Lichlyter, M.D., H. A. Gay, M.D., Kansas City, presented the scientific program which consisted of interesting studies of the gastrointestinal tract from the standpoint of the roentgenologist.

The following officers were elected: President, M. O. Langhus, M.D., North Kansas City; vice president, David Musgrave, M.D., Excelsior Springs; secretary and treasurer, S. R. McCracken, M.D., Excelsior Springs; delegate, Glenn Hendren, M.D., Liberty; alternate, A. E. Spelman, M.D., Smithville.

S. R. McCracken, M.D., Secretary.

SECOND COUNCILOR DISTRICT

W. F. FRANCKA, HANNIBAL, COUNCILOR

Randolph-Monroe-Chariton County Medical Society

The Randolph-Monroe-Chariton County Medical Society met in Moberly on December 12 with nineteen members and their wives present. Guests were Dr. and Mrs. Howard B. Goodrich, Hannibal; Dr. and Mrs. W. F. Francka, Hannibal, and Raymond McIntyre, St. Louis.

Mr. McIntyre emphasized the importance of activating small county medical societies by hyphenating several into one, giving statistics. He discussed the need of more hospitals and doctors in rural districts and the importance of voluntary, nonprofit prepaid medical and surgical care plans.

Dr. Francka gave an interesting talk on the important part each physician should take in politics in order to preserve medical practice as it is today.

Dr. Goodrich discussed the Wagner-Murray-Dingell bill, contrasting it with the present form of medical practice. He gave the advantages of voluntary prepaid medical and hospital plans as contrasted to socialized government medicine but stated that more medical men were needed in rural districts and to remedy this, efforts are being made to establish a four-year medical school in the University of Missouri.

Drs. Miller and Eggleston, representing the Macon County Medical Society, officially voted to hyphenate with the Randolph-Monroe-Chariton County Medical Society. It was voted unanimously to accept them and the official name of the society thus formed was decided by vote to be the Chariton-Macon-Monroe-Randolph County Medical Society.

It was voted to make the county dues $2.00.

The following officers were elected: President, Avery P. Rowlette, M.D., Moberly; vice president, D. E. Eggleston, M.D., Macon; secretary-treasurer, F. A. Barnett, M.D., Paris; Chariton County delegate, G. W. Hawkins, M.D., Salisbury, alternate, F. L. Harms, M.D., Salisbury; Macon County delegate, H. E. Erni, M.D., Macon, alternate, D. E. Eggleston, M.D., Macon; Monroe County delegate, F. A. Barnett, M.D., Paris, alternate, George M. Ragsdale, M.D., Paris; Randolph County delegate, J. W. Fleming, M.D., Moberly, alternate, T. S. Fleming, M.D., Moberly; censors for one year, F. L. Harms, M.D., Salisbury; Howard Miller, M.D., Macon; F. A. Barnett, M.D., Paris; L. O. Nickell, M.D., Moberly.

F. A. Barnett, M.D., Secretary.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its first regular meeting of 1947 on January 8 at 8:30 p. m. at the Coronado Hotel, St. Louis, with approximately 225 members and guests present for the annual dinner and installation of officers. Dinner and dancing preceded the ceremonies.

E. B. Waters, M.D., called the meeting to order and introduced the toastmaster for the evening, Otto W. Koch, M.D.

Dr. Koch introduced the retiring officers and then presented the newly elected officers for 1947 as follows: President, Richard A. Sutter, M.D.; vice president, E. B.

Waters, M.D.; secretary, Martyn Schattyn, M.D.

Dr. Waters presented his address of the retiring president.

Dr. Sutter assumed the gavel and presented his inaugural address. Following this he announced the chairmen and members of the committees of the society.

Dr. Sutter presented the members of the council as follows: William H. Bailey, M.D., T. H. Hale, M.D., John D. Hayward, M.D., Julius Jensen, M.D., R. C. McLean, M.D., James R. Meador, M.D., C. E. Sterling, M.D., Roland Steubner, M.D., and Paul R. Whitener, M.D.

Dr. Sutter read the names of the delegates to the Missouri State Medical Association: R. B. Denny, M.D., O. P. Hampton, Jr., M.D., Roy A. Walther, Sr., M.D., and Arthur W. Westrup, M.D.

Dr. Waters presented the guest speaker of the evening, Howard B. Goodrich, M.D., Hannibal, President of the Missouri State Medical Association, who gave an interesting talk.

Dr. Koch presented Dr. Waters with a 16 mm. movie camera as a gift from his friends within the Society in appreciation of his services during 1946.

Martyn Schattyn, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Carter-Shannon County Medical Society

The Carter-Shannon County Medical Society met in the office of T. W. Cotton, M.D., Van Buren, at 4:00 p. m. on December 6 with the following present: Frank Hyde, M.D., and W. T. Eudy, M.D., Eminence; R. I. Davis, M.D., Birch Tree; T. W. Cotton, M.D.; Van Buren; H. D. Rollins, M.D., Winona.

Dr. Rollins was voted a member at the meeting.

Dr. Cotton introduced two interesting cases, one a woman with high blood pressure and nephritis. The second case was a male with skin lesions bordering on the malignant.

After the meeting, the members were invited to dinner with the Rotary Club as guests of Dr. Cotton. The Club had a nice program with motion pictures after which talks were given.

W. T. Eudy, M.D., Secretary.

South Central Counties Medical Society

The South Central Counties Medical Society met at the Elliott Hotel, Mountain Grove, on December 20, for a dinner meeting with the following members and visitors present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., R. W. Denney, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; C. T. Callihan, M.D., Willow Springs; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains; R. H. Boots, M.D., U. J. Busieck, M.D., Garrett Hogg, M.D., Springfield.

Dr. Boots gave some timely remarks concerning several common conditions of the eye, ear, nose and throat.

Dr. Busieck discussed the newborn child. A vote of thanks was given the speakers.

It was decided to invite the wives to attend the next meeting and attempt to organize a Woman's Auxiliary to the Society.

It was voted to continue the officers for 1946 into 1947 with R. W. Denney, M.D., Mountain Grove, to take the place of L. M. Dillman, deceased, as censor. The officers for the year are: President, J. R. Mott, M.D., Hartville; vice president, C. T. Callihan, M.D., Willow Springs; secretary and treasurer, A. C. Ames, M.D., Mountain Grove; censors, R. W. Denney, M.D., Mountain Grove, Garrett Hogg, M.D., Cabool, and R. A. Ryan, M.D., Mountain Grove. Delegates and alternates are: Howell County, C. F. Callihan, M.D., Willow Springs, Rollin H. Smith, M.D., West Plains; Oregon County, C. A. Cooper, M.D., Thayer, T. A. Barnes, M.D., Thayer; Texas County, Garrett Hogg, M.D., Cabool, Ralph T. Harsh, M.D., Houston; Wright County, R. A. Ryan, M.D., Mountain Grove, J. R. Mott, M.D., Hartville; Douglas County, M. C. Gentry, M.D., Ava, R. M. Norman, M.D. Ava.

A. C. Ames, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

Ste. Genevieve County Medical Society

The Ste. Genevieve County Medical Society held its annual meeting for the election of officers at 1:00 p. m., December 11, at Sexauer Hall, Ste. Genevieve, with the president, C. J. Clapsaddle, M.D., in the chair.

The minutes of the last meeting were read and approved.

The following officers were elected unanimously: President, C. J. Clapsaddle, M.D.; vice president, R. C. Lanning, M.D.; secretary-treasurer, R. W. Lanning, M.D.; delegate, A. E. Sexauer, M.D., alternate, R. C. Lanning, M.D.; board of censors, R. W. Lanning, M.D.

The treasurer's report was read and approved.

The death of J. A. Wilkens, M.D., St. Marys, in November is deeply regretted by the members of the society.

The meeting adjourned to meet the second Wednesday in January.

R. W. Lanning, M.D., Secretary.

COMMERCIAL ANNOUNCEMENT

CIBA PHARMACEUTICAL PRODUCTS CORRECTS ERROR IN MEDICAL SLYD-RUL

The Ciba Pharmaceutical Products, Inc., Summit, New Jersey, recently mailed to many physicians a slide-rule for converting apothecary to metric units. Due to a manufacturer's error in placement of a decimal point, conversion on the rule from 0.4 grain to gram is incorrect and should read 0.025 gram, not 0.25. Physicians are requested to replace the original celluloid table with a corrected temporary paper table which is being mailed to physicians until new celluloid tables can be made available.

BOOK REVIEW

Clinical Laboratory Diagnosis. By Samuel A. Levinson, M.S., M.D., Ph.D., Director of Laboratories, Research and Educational Hospitals, Chicago, Illinois; Professor of Pathology, University of Illinois College of Medicine and Robert P. MacFate, Ch.E., M.S., Ph.D., Assistant Director of Laboratories, Research and Educational Hospitals, Chicago, Illinois; Assistant Professor of Pathology, University of Illinois College of Medicine. Third Edition, Thoroughly Revised. Illustrated with 192 Engravings and 15 Plates, 7 in color. Lea & Febiger. Philadelphia. 1946. Price $10.00.

One is always pleased to see Levinson and MacFate's textbook, "Clinical Laboratory Diagnosis." This third edition contains many new features. The summary of diseases at the end of each chapter is particularly commendable and the book has been brought well up-to-date. The section on gastric juice and gastric physiology is excellent. The authors have added the laboratory findings in tropical medical diseases. This will be found quite useful to those who are interesting themselves in this important subject.

The third edition of Levinson and MacFate's book is a very worthwhile volume and a reliable guide in clinical laboratory diagnosis. R. B. H. G.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

INVITATION TO CONVENTION

Welcome to Kansas City

Put on your Easter Bonnet and come to the State Convention, March 31, when the Doctors' Wives will meet again to renew old friendships and bring news of their year's activities.

Mayor Kemp will present you the key to the City and the Chamber of Commerce promises to shower you with that well-known Missouri Hospitality.

Your Hostesses, Jackson County, are making big plans. So be sure to come.

MRS. EDWARD H. THIESSEN,
President, Jackson County.

THE PRESIDENT'S MESSAGE

The twenty-second annual meeting of the Woman's Auxiliary to the Missouri State Medical Association will be held in Kansas City on March 31 and April 1. The headquarters and the place of meeting will be the Hotel Muehlebach.

Mrs. H. C. Trippe, convention chairman, and her coworkers are making plans for our entertainment and pleasure. We urge you to make your reservations early for this meeting. A complete program of events will be in the next issue of THE JOURNAL.

Let us make this a big meeting. We hope to meet many members from our new auxiliaries and our new members-at-large. If you are not a new member, won't you join us?

Mrs. R. C. Haynes, Marshall, will be the chairman of nominations.

MRS. WALTER E. KOPPENBRINK, President.

Public Relations

Have you had your Public Relations Meeting? The end of our year will soon be here, so if vou have not had your meeting, try and do it at once. This is one of the best ways to reach the lay people and then, too, we ourselves will be better informed on medical legislation and medical economic problems.

Cass County was one of the first Auxiliaries to have a Public Relations Meeting. They are to be congratulated. Their speaker was Mr. F. K. Helsby, Executive Secretary of the Blue Cross Hospital Service of Kansas City.

St. Louis City had an interesting meeting also. Mr. E. L. Skinner, St. Louis, Public relations consultant, was the speaker.

Jackson County will have their Public Relations Meeting in February at which time Mr. Skinner will speak to them.

This is our opportunity. Let's all do it.

MRS. DWIGHT VAN DEL.

Attention County Treasurers

Now is the time to send your County's dues to the State Treasurer. Please check your Roster to make sure that every member has paid her dues.

Remember that we are working for 1,000 members for Missouri.

Dues must be paid by the first of March, which is the close of the fiscal year.

Be sure and get yours to me on time.

MRS. R. C. PORTER,
Dundee Hills, North Kansas City.

Attention Doctors' Wives

We wives of doctors can assist our husbands by being instructed in medical matters of the day in which the public is interested, and then to disseminate the correct information through the various social or civic organizations with which we are affiliated.

An informal group such as the Woman's Auxiliary can render assistance that cannot be supplied by any other group.

Friendliness among physicians' families cannot be too greatly emphasized.

If you are not already a member, join with us; if you are, get others to join. Help us reach our goal of 1,000 members this year.

MRS. JOHN O'CONNELL,
Organization Chairman.

Hygeia Gifts from American Legion

The Andrew H. Panettiere Post of the American Legion, organized within the last year and composed only of physicians and dentists who are members of the component medical societies and who are veterans of World War II, adopted as one of its first projects the placing of one year subscription to Hygeia in the libraries of every public, private and parochial school in Jackson County, Missouri, and Wyandotte County, Kansas, and in some of the high schools in Johnson County, Kansas, and Clay County, Missouri.

This was a splendid contribution for a very young organization as there are now 323 schools in the Kansas City area receiving Hygeia as the gift of these men. The schools have proven their gratitude by a great many sincere letters of thanks from principals, teachers and students.

MRS. G. WILSE ROBINSON, JR.,
Hygeia Chairman of Jackson County.

BOOK REVIEW

HUMAN EAR IN ANATOMICAL TRANSPARENCIES, by Descriptive text Stephen L. Polyak, M.D., Professor of Anatomy, The University of Chicago, Anatomical Transparencies and illustrations by Gladys McHugh, Medical Illustrator, The University of Chicago Clinics, and Anatomic preparations by Delbert K. Judd, M.D., Assistant Professor Otolaryngology, The University of Chicago. Published under the auspices of Sonotone Corporation, distributed by T. H. McKenna, Inc., New York. 1946. Price $10.50.

Here is an excellent aid to anatomic study of the head and neck, prepared with the purpose of showing the relation of any parts to the function of hearing. It would be useful to any student of anatomy, though the discussion may be more appealing to otologists than to others.

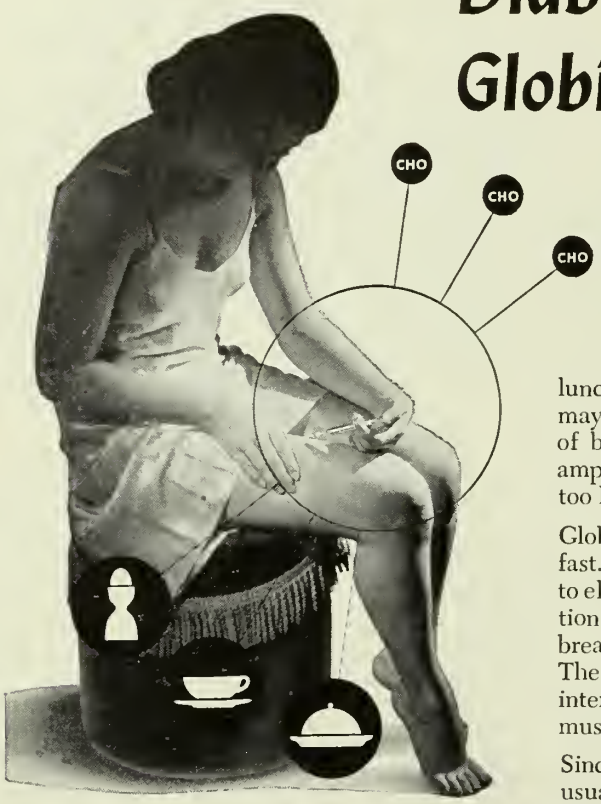
In Part I the transparencies are beautiful and accurate drawings of dissections in various planes of the head and neck placed on transparent paper and superimposed on one another so that turning the pages simulates lifting slabs of dissection material; thus the student imagines that he is in the dissection laboratory. Numerous other colored drawings illustrate the text.

Part II is more definitely devoted to the middle and inner ear with less concern about the rest of the anatomy. Here also transparencies and other illustrations are very good.

The function and anatomic relationship of parts are clearly presented throughout the book. This will serve as an adjunct to other means of study but will not replace them.

H. B.

Diabetes, diet and Globin Insulin . . .



THE ADVANTAGES of one-injection control of diabetes can, through adjustment of diet and dosage, be made available to the majority of patients requiring insulin. In view of the convenience and freedom afforded by the unique intermediate action of 'Wellcome' Globin Insulin with Zinc, the necessary adjustment is well worth while. Though not a complicated procedure, the regulation of carbohydrate balance warrants reiteration because of its importance:

SOME FACTS ABOUT DIETARY ADJUSTMENT: The distribution of carbohydrate in the meals must be adjusted in accord with the type of action exhibited by Globin Insulin, which is intermediate between regular and protamine zinc insulin. Proper carbohydrate distribution with proper insulin timing is essential; lack of balance may lead to poor control or to an erroneous impression of the characteristics of Globin Insulin.

A good carbohydrate distribution for the patient on Globin Insulin is to divide the total carbohydrate per day into 1/5 at breakfast, 2/5 at lunch and 2/5 at suppertime. This initial diet may be adjusted in accord with the indications of blood sugar levels and urinalyses. (For example, a low blood sugar before supper indicates too little carbohydrate for lunch or vice versa.)

Globin Insulin is ordinarily given before breakfast. Onset of action is usually sufficiently rapid to eliminate the need for a supplementary injection of regular insulin. However, the amount of breakfast carbohydrate should not be too large. The right amount, as well as the optimal time interval between the injection and breakfast, must of course be determined for each patient.

Since the maximum action of Globin Insulin usually occurs in the afternoon or early evening, hypoglycemia is sometimes noted at this time. As a guard against it, the carbohydrate content of the noon meal may be increased, or a midafternoon lunch provided. Thus the original distribution of 1/5, 2/5 and 2/5 might, for example, require adjustment to 2/10, 5/10 and 3/10 or to 2/10, 4/10, 1/10 and 3/10. Once the balance of carbohydrate intake and insulin timing has been established, the patient must be impressed with the importance of adhering to the regimen.

'Wellcome' Globin Insulin with Zinc is a clear solution, comparable to regular insulin in its freedom from allergenic properties. Available in 40 and 80 units per cc., vials of 10 cc. Accepted by the Council on Pharmacy and Chemistry, American Medical Association. Developed in The Wellcome Research Laboratories, Tuckahoe, New York. U.S. Patent No. 2,161,198. LITERATURE ON REQUEST.

'Wellcome' Trademark Registered

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Beisbarth, Albert.....St. Louis
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Belaval, Gustavo S...Kansas City, Kansas
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Coleman, William G.....St. Louis
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Connor, John J.....St. Louis
Conover, Charles C.....Kansas City
Conrad, Adolph H.....St. Louis
Conrad, Adolph H., Jr.....St. Louis
Conrad, Harry S.....St. Joseph
Conrad, Joseph.....Chillicothe
Conrad, Joseph A.....Kansas City
Conrad, Marshall B.....Danville, Ill.
Conrad, Raymond C.....Springfield
Conrad, Robert W.....St. Joseph
Conway, Francis.....St. Louis
Cook, James T.....St. Louis
Cook, Jerome E.....St. Louis
Cook, O. W.....Caruthersville
Cook, Ralph L.....University City
Cook, Robert J.....Brentwood
Cook, Thomas F.....Richmond
Cooke, Jean V.....St. Louis
Coombs, Miller O.....Joplin
Coon, James W.....Des Moines, Iowa
Cooper, Claude W.....Thayer
Cooper, John H.....Kansas City
Cooper, John M.....Butler
Cooper, Lawrence E.....Cooter
Cooper, Maurice Edmund.....Columbia
Cooper, Raymond G...Penns Grove, N. J.
Cooper, R. Lee.....Warrensburg
Cope, Edwin G.....Hornersville
Cope, Josef S.....Lexington
Copette, Alex P.....Crane
Copher, Glover H.....St. Louis
Cordonnier, Justin.....St. Louis
Cordry, Harold V.....Kansas City
Corley, Henry N.....Webster Groves
Correnti, Nicholas A.....St. Louis
Cory, Harriet S.....St. Louis
Cossins, Carlos E.....St. Joseph
Costello, Cyril J.....St. Louis
Costello, Joseph P.....St. Louis
Costen, James B.....St. Louis
Costrino, Joseph A.....St. Louis
Cotton, Tolman W.....Van Buren
Cottrell, Wilson P.....Reeds Spring
Coughlin, Bertrand D.....St. Louis
Counsell, Chester M.....Kansas City
Cowan, R. D.....Aurora
Cowherd, Joseph Bird.....Kansas City
Cox, Kenneth E.....Kansas City
Craig, Arthur D.....Springfield
Craig, Irwin T.....Joplin
Craig, Owen W. D.....St. Joseph
Craig, William E.....Moberly
Cramb, Arthur B.....Kirksville
Crawford, Archie L.....Joplin
Crawford, H. S.....Long Beach, Calif.
Creane, John C.....St. Louis
Creech, Joseph C.....Troy

QUERY:

Has the Council on Pharmacy and Chemistry yet accepted any individual brand of testosterone propionate?*
*J.A.M.A. May 4, 1946

ANSWER:

Yes. The brand which has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies is

TESTOSTERONE PROPIONATE "RARE CHEMICALS"

Approved literature describing the use of this N.N.R. androgenic preparation in recognized indications will be forwarded on request.

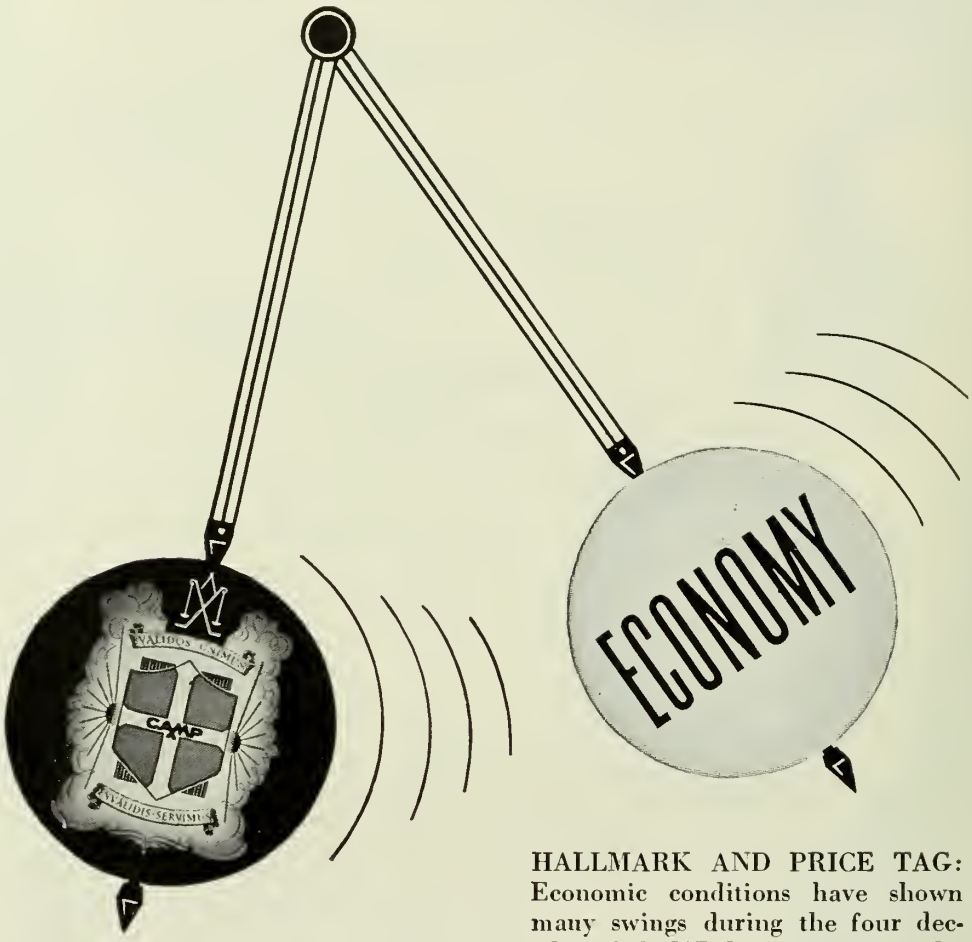
ACCEPTED AMERICAN MEDICAL ASSN Council on Pharmacy and Chemistry



Obtainable from your usual source of supply in 1 cc. ampules, 5 mg., 10 mg., and 25 mg.; in boxes of 3, 6, and 50.

RARE CHEMICALS, INC. HARRISON, NEW JERSEY

WEST COAST DISTRIBUTORS: **GALEN COMPANY,** RICHMOND, CALIFORNIA



Camp Anatomical Supports have met the exacting test of the profession for four decades. Prescribed and recommended in many types for prenotol, postnatal, postoperative, pendulous abdomen, visceroptosis, nephroptosis, hernia, orthopedic ond other conditions. If you do not have a copy of the Comp "Reference Book for Physicions and Surgeons," it will be sent upon request.

HALLMARK AND PRICE TAG: Economic conditions have shown many swings during the four decades of CAMP history. But in the rhythm and flow of changing conditions, CAMP price tags always have been and always will be conscientiously based on intrinsic value, just as the credo and pledge of the CAMP hallmark always have been and always will be expressed in the superb quality and functional efficiency of CAMP products. All are the measure of true economy to the patient.

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Crites, Edward.....Sedgewickville
Crites, John L.....Charleston, W. Va.
Cron, Heinz E.....St. Louis
Cross, Glen O.....Ft. Dix, N. J.
Crossen, Harry S.....St. Louis
Crossen, Robert J.....St. Louis
Crossman, Robert Wesley.....St. Louis
Crouch, F. Richard.....Farmington
Crouch, Richard L.....Columbia
Crowe, John T.....New York, N. Y.
Crowson, Eugene L.....Pickering
Culbertson, William F.....Springfield
Cullers, Charles Horace.....Trenton
Cummings, James H.....St. Louis
Cummins, Walter F.....Kansas City
Cunningham, Eric A.....Louisiana
Cunningham, Harvey L...Cape Girardeau
Curdy, Robert J.....Kansas City
Curran, Edward J.....Kansas City
Curran, Kevin E.....Kansas City
Curran, Maurice D.....Kansas City
Currie, Kenneth P.....Poplar Bluff
Cutler, Harold M.....St. Louis
Cutler, Harry.....St. Louis

—D—

Dahms, Gustave.....St. Louis
Daley, Lyle M.....Hamilton
Dalton, Arthur R.....St. Louis
Dalton, Martin.....Fenton
Dalton, Michael H.....St. Louis
Daly, John R.....St. Louis
Daman, George A.....St. Louis
Damron, O. E.....Elsberry
Damron, Oscar H.....Warrensburg
Danglade, James H.....Kansas City
Danis, Peter G.....St. Louis
Dann, David S.....Kansas City
Darnell, Thomas F. B.....Kansas City
Darrow, Arthur C...San Fernando, Calif.
Davault, Webster W.....Allenville
Daugherty, Philip V.....Nashville, Tenn.
Davie, Joseph.....St. Louis
Davis, Albert W.....Kansas City
Davis, C. Braxton.....Nevada
Davis, Charles B.....Walker
Davis, Edgar W.....Givin, Iowa
Davis, Frank L.....St. Louis
Davis, Harry H.....Rolla
Davis, Irl R.....St. Louis
Davis, Kenneth Albert.....Kansas City
Davis, Landis Y.....Canton
Davis, Martin W.....Cape Girardeau
Davis, Myron Woodward.....St. Louis
Davis, Paul C.....Neosho
Davis, Phillips N.....St. Louis
Davis, Robert C.....Kansas City
Davis, Robert I.....Birch Tree
Davis, Thomas M.....St. Louis
Davis, Wilbur L.....Charleston
Dawson, John W.....El Dorado Springs
Dawson, Lerton V.....Excelsior Springs
Day, Anthony B.....St. Louis
Day, O. Maxwell.....St. Joseph
Deakin, Rogers.....St. Louis
Dean, Lee Wallace, Jr.....St. Louis
Dean, Leslie E.....Maryville
DeLamater, Hasbrouck.....St. Joseph
Delaney, Joseph H.....Address Unknown
de la Torre, John J.....Sullivan
del Regato, J. A.....Columbia
Delzell, William A.....Springfield
DeMaria, Peter Frank.Address Unknown
Demko, Frank.....St. Louis
Demko, William.....St. Louis
DeMotte, John Allan.....Kansas City
Dempsey, D. T.....Kennett
Denk, Albert A.....St. Louis
Denney, Richard W.....Mountain Grove
Dennie, Charles C.....Kansas City
Denny, Chester H.....St. Louis
Denny, H. M.....Union
Denny, Robert B.....Creve Coeur
Denton, Levi D.....Hayti
DePew, Heber B.....St. Louis
Deppe, Arthur H.....St. Louis
DeTar, Burleigh E.....Joplin
Deutch, Max.....St. Louis
Devereux, James A...Jefferson Barracks
DeVilbiss, E. F.....Kansas City
Devine, John B.....St. Louis
Deweese, E. R.....Kansas City
Dewey, James E.....Springfield
Dexheimer, Frank E.....Columbia
Diamond, Jerome.....St. Louis
Dickson, Frank D.....Kansas City
Dickson, James A.....St. Louis
Dieckman, William C.....Dexter
Diehr, Alvin H.....St. Louis
Diehr, Maurice August.....St. Louis
Diekroeger, Manuel L.....Boonville
Dietrich, Karl David.....Columbia
DiLeo, Senatro W.....St. Louis
Dill, Foster A.....Maplewood
Dillon, William G.....Salem
Dimond, Edgar A.....Kansas City
Disque, Andrew A.....St. Joseph
Diveley, Rexford L.....Kansas City
Dixon, John Rex.....Brookfield
Dixon, Otto Jason.....Kansas City
Dmytryk, Eugene T.....St. Louis
Dlabal, Luke J.....Independence
Doan, Deborah.....Bakersfield
Dobbs, Otto R.....St. Louis
Donaldson, Clyde O.....Kansas City
Donaldson, J. Earle.....Kansas City
Donley, Robert R.....Monett
Donnell, George N...Los Angeles, Calif.
Donnell, Jesse F.....Crystal City
Donnell, Robert Hart.....Crystal City
Donnell, Thomas A.....DeSoto
Dorris, George T.....Illmo
Dorris, Richard P.....Jefferson City
Dorsett, E. Lee.....St. Louis
Dorsey, John W.....Long Beach, Calif.
Doubek, John C.....St. Louis
Douglas, Thomas H., Jr.....Osceola
Douglass, Jesse E.....Webb City
Dowd, James F., Jr...Address Unknown
Dowell, Donald Maurice.....Chillicothe
Dowell, George S.....Braymer
Dowell, Horace S.....Chillicothe
Doyle, Charles R.....St. Louis
Doyle, Raymond E.....St. Louis
Doyle, William J.....St. Louis
Drace, Charles C.....St. Louis
Drace, Charles C., Jr.....St. Louis
Drace, James J.....Cape Girardeau
Drake, Avery A.....Rolla
Drake, Truman G.....St. Louis
Draney, Thomas L.....Kansas City
Drescher, Emmett R.....St. Louis
Drews, Leslie C.....St. Louis
Drey, Norman W.....St. Louis
Dreyer, Philip V.....Huntsville
Dripps, Roy C.....St. Louis
Drum, Clarence G.....St. Louis
Drum, Helen M. Aff.....Clayton
Drury, Robert L.....St. Louis
Duckett, Claude E.....Lamar
Duckworth, William H.....St. Clair
Duden, Charles W.....St. Louis
Duderstadt, Warren M.....Kansas City
Duemler, John H.....St. Louis
Duemler, Rutherford S.....Seneca
Duemler, Thomas B.....Seneca
Duer, Mildred C.....Kansas City
Duff, Talbot S.....Cainsville
Duffy, Edgar A.....Trenton
Duffy, Oliver F.....Trenton
Dugan, Lawrence J.....St. Louis
Dugay, Harry W.....Kansas City
Dulick, Michael.....St. Louis
DuMont, Clement C.....St. Joseph
Dunaway, Howard A.....Sikeston
Duncan, Ralph E.....Kansas City
Duncan, Robert D.....Springfield
Duncan, William H.....Kansas City
Dunham, R. H.....North Kansas City
Dunkeson, Edward B.....Lathrop
Dunmore, George O.....Kennett
Dunn, Edward H.....St. Louis
Dunsmore, J. M.....St. Joseph
Durham, Silas L.....Dearborn
Durst, Henry.....Fulton
Dworkin, Saul.....St. Louis
Dwyer, Hugh L.....Kansas City
Dwyer, Thomas L.....Vandalia
Dyer, Clyde P.....St. Louis
Dyer, Dallas J.....St. Louis
Dyer, David P.....Sedalia
Dyer, John H.....Warrenton
Dysart, William P.....Columbia

—E—

Eades, Dee W.....St. Louis
Eber, Carl T.....St. Louis
Echterhoff, Harry R.....St. Louis
Eck, Peter A.....St. Louis
Ecker, Decider.....Pacific
Eckert, Charles L.....St. Louis
Eckert, Clarence T.....St. Louis
Ecklund, Archibald.San Francisco, Calif.
Edde, Clifford G.....Kansas City
Edele, Eugene Harry.....St. Louis
Edens, Louis M.....Cabool
Edmonds, Devilla A.....Kansas City
Edmondson, John L.....Stella
Edmundson, J. Phil.....Kansas City
Edwards, D. R.....Sedalia
Edwards, Edwin D.....St. Louis
Edwards, Joseph C.....St. Louis
Edwards, T. Burton.....Cedar Hill
Eggleston, E. E.....Macon
Egley, Loren Edward.....St. Louis
Ehlers, Charles W.....St. Louis
Ehresmann, Joseph J.....Carrollton, Ill.
Eidelman, J. Robert.....St. Louis
Eidmann, Walter P.....St. Louis
Eigel, Edwin G.....St. Louis
Eimer, Charles E.....St. Louis
Eisele, Matthew B...East St. Louis, Ill.
Eisenmann, Benjamin P.....New Haven
Elam, William T.....St. Joseph
Elders, Frank A., Jr.....Rolla
Eldridge, Charles J.....Kansas City
Eliscu, Fred.....St. Joseph
Elkins, C. Bryant.....Springfield
Elkins, Ronald F.....Springfield
Ellersieck, Dorothy M.....St. Louis
Ellery, William L.....LaGrange
Elliott, B. Landis.....Kansas City
Elliott, James R.....Kansas City
Elliott, John R.....St. Joseph
Elliott, Raymond Glenn.....Kansas City
Elliott, Robert W.....St. Louis
Elliott, W. H., Jr...Palm Springs, Calif.
Ellis, Frank B.....Garden City
Ellis, William W.....Marceline
Ellison, Leroy E.....Maplewood
Elman, Robert.....St. Louis
Elmer, Warren P.....St. Louis
Elrod, Dennis B.....Cape Girardeau
Elson, Julius.....University City
Elston, George B.....Kansas City
Elz, Julius T.....St. Louis
Emery, Edgar V. N.....St. Louis
Emmert, Fred.....St. Louis
Engel, Lawrence P.....Kansas City
Engleman, Reinhold.....Denver, Colo.
English, Milton T., Jr.....Seattle, Wash.
English, Wallace D.....Cardwell
Engman, Martin F.....St. Louis
Engman, Martin F., Jr.....St. Louis
Enloe, Lawrence D.....Jefferson City
Epp, George J.....St. Louis
Epperly, R. G.....Huntsville
Epps, Curtis.....Springfield
Erni, Harry E.....Macon
Ernst, Edwin C., Jr.....Hot Springs, Ark.
Ernst, Edwin C.....St. Louis
Eskeles, Irwin H.....St. Louis
Eslick, Ralph L.....Raytown
Esmond, Marie.....Kansas City
Esslinger, Arthur T.....St. Louis
Esslinger, Gillis A...San Francisco, Calif.
Estes, Albert M.....Jackson
Eto, Jackson.....St. Louis
Etzenhouser, R. D., Jr...Independence
Eubank, A. E.....Kansas City
Eubank, Dillard M.....Raytown
Eubank, William R.....Kansas City
Eudy, W. Thomas.....Eminence
Evans, Albert L.....Bonne Terre
Evans, E. J. E.....Kansas City
Evans, Emery E.....St. Louis
Evans, Ezra L., Jr.....Springfield
Evans, Ezra L.....Springfield
Evans, Harry T.....Branson
Evans, Robert L.....Boonville
Eversoll, Norton J.....St. Louis
Ewerhardt, F. H.....St. Louis
Ewing, Bertha E.....Kansas City
Eyermann, Charles H.....St. Louis
Eyermann, H. Walter.....Warrenton

—F—

Fagley, Raymond C...West Orange, N. J.
Fair, Shields W.....Kansas City
Falk, O. P. J.....Clayton
Fallet, Charles E.....DeSoto
Farley, Claude C.....Kansas City, Kansas
Farley, William M.....St. Louis
Farney, Jacob P.....Kansas City
Farnsworth, Jesse J.....Kansas City
Farrell, Robert J.....St. Louis
Farris, William Walker.....St. Louis
Farthing, Fred R.....Springfield
Farthing, Gene W.....Springfield
Farthing, Robert R.....Ozark
Fassett, Charles Wood.Burlingame, Calif.
Feierabend, Frank L.....Kansas City
Feind, Earl E.....Rolla
Feinstein, Leon A.....St. Louis
Feist, George V.....Kansas City
Feller, C. E.....Springfield
Feller, Harold H.....St. Louis
Fellhauer, Carl M.....St. Louis
Fellows, William W.....Aspinwall, Pa.
Feltz, L. W.....Perryville
Ferguson, Eugene H.....Kansas City
Ferguson, James T., Jr...Topeka, Kansas
Ferguson, John P., Jr.....Springfield
Ferguson, L. H.....Monett
Ferguson, Luther J.....St. Joseph
Ferguson, R. E.....Elmo

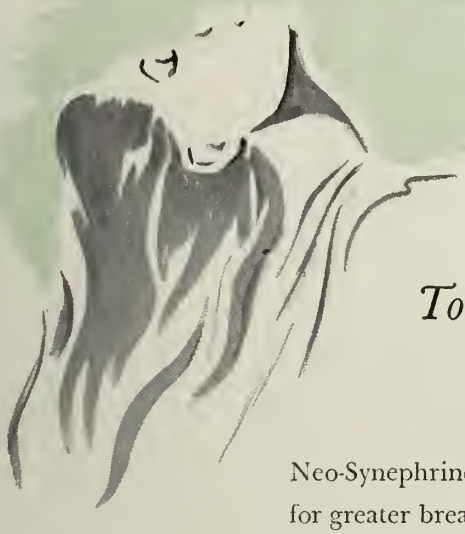
Ferguson, Robert M.....Webb City
Ferrara, John Pierre.....St. Louis
Ferrell, Thomas E., Jr.....Springfield
Ferris, Carl R.....Kansas City
Ferris, David P.....St. Louis
Ferris, Joseph L.....St. Louis
Ferster, William R.....Kansas City
Fessenden, Ersel M.....St. Louis
Findley, James W.....Kansas City
Fineberg, Maxwell.....St. Louis
Fingert, H. H.....St. Louis
Finley, Freeman L.....Overland
Finney, W. O.....Chaffee
Finnegan, Frank R.....St. Louis
Fischel, Walter.....St. Louis
Fischer, Erich.....St. Louis
Fischer, Theodore.....Altenburg
Fish, Virgil O.....St. Louis
Fisher, Arthur O.....St. Louis
Fisher, Joseph L.....St. Joseph
Fitch, C. H. Max.....Springfield
FitzGerald, Leo P.....University City
Fitzgerald, William M.....St. Louis
Flader, Otto F.....St. Louis
Flanary, David L.....Phoenix, Ariz.
Flance, Israel J.....St. Louis
Flanders, Horace Frank.....Kansas City
Flavan, David B.....St. Louis
Fleishman, Alfred.....St. Louis
Fleming, Jacob W., Jr.....Moberly
Fleming, Thomas S.....Moberly
Fletcher, Paul F.....St. Louis
Florian, Albert J.....Kansas City
Flotte, Bernard H.....St. Louis
Flynn, George T., Jr.....St. Louis
Flynn, George W.....Clayton
Flynn, John T.....St. Louis
Flynn, Joseph E.....St. Louis
Focht, Ralph H.....Strafford
Fogle, Robert L.....Otterville
Folkers, L. M.....Columbia
Fonda, James W.....Poplar Bluff
Ford, Lee T., Jr.....St. Louis
Ford, William T.....Portsmouth, Va.
Ford, Walter W.....Gordonville
Fordyce, Claude P.....St. Joseph
Forgrave, John R.....St. Joseph
Forgrave, Leon Paul.....St. Joseph
Forman, Frank S., Jr.....Kansas City
Forman, George W....Address Unknown
Forsen, James A.....St. Louis
Forsman, Waldo W., Jr.....St. Louis
Forster, Armand C.....St. Louis
Forti, John J.....St. Louis
Foster, Howard M.....St. Louis
Foster, Leon.....St. Louis
Foster, Robert L.....St. Louis
Fowler, I. Charles.....North Kanas City
Fox, Leon J.....St. Louis
Fox, Robert E.....Fond du Lac, Wis.
Frame, Homer Glenn...Mountain Grove
Francisco, Clarence.....Kansas City
Francka, W. F.....Hannibal
Frank, Adolph M.....St. Louis
Frankel, Sol Irwin.....St. Louis
Frankenthal, Maurice A.....St. Louis
Franklin, Max S.....St. Louis
Frazier, V. Eugene.....Mesa, Ariz.
Fredeen, Robert C.....Kansas City
Fredendall, George W.....Lexington
Freedman, Harold.....St. Louis
Freedman, Ruth S.....St. Louis
Freeman, S. F.....Springfield
Freeman, Spencer L.....Kirksville
Freimuth, L. E.....St. Louis
Freund, Newton M.....St. Louis
Freund, Samuel J.....St. Louis
Frick, John Paul.....Kansas City
Friedewald, Vincent E..Bigsprings, Texas
Friedman, Bernard.....Koch
Friedman, Morris L.....Kansas City
Fries, Armand D.....St. Louis
Fries, William A.....St. Louis
Fritsch, Kilian F.....St. Louis
Froelich, Edwin J.....St. Louis
Fuchs, George J.....St. Louis
Fuerth, A. L.....Cape Girardeau
Fujikawa, Y. F.....Mount Vernon
Fulbright, James H.....Springfield
Fulkerson, Perry P.....St. Joseph
Funsch, Edwin C.....St. Louis
Furlong, Robert David.....St. Louis
Furlow, Leonard T.....Kirkwood
Fuson, John Alva.....Mansfield
Fuson, Levi Harrison.....St. Joseph
Fuson, W. A.....Trenton

—G—

Gaebe, Harold C.....Desloge
Gafney, George T.....St. Louis
Gage, Helen L. B.....Webster Groves
Gaines, Quentin M.....Kirkwood
Gainey, Harold L.....Address Unknown
Galbreath, Jesse W.....Urich
Gale, Frank W.....Bismarck
Gale, Richard.....Joplin
Gale, William S.....Osborn
Galeota, William R...Address Unknown
Gallagher, Edward T.....St. Louis
Gallagher, John F.....St. Louis
Gallagher, Joseph C.....Rossford, Ohio
Gallagher, William J.....St. Louis
Ganley, William C.....Kansas City
Gansloser, Maximilian W.....St. Louis
Gansloser, Wilbert M.....St. Louis
Garcia, Charles L.....Mexico
Gard, Raymond F.....Independence
Gardner, Joseph W.....Glasgow
Garner, Lynn M.....Jefferson City
Garvin, Leo V.....St. Louis
Gashwiler, J. Schooling.....Novinger
Gaskins, John Hayden.....Kansas City
Gaston, Ralph E.....Webster Groves
Gauen, George Otto.....St. Louis
Gaunt, Frank P.....Webster Groves
Gay, Elmer E.....Richmond
Gay, George.....Ironton
Gay, Lee Pettit.....St. Louis
Gay, Ray J.....Kansas City
Gebert, Clara M.....Valley Park
Gebhart, Oliver C.....Oregon
Gempel, Paul A.....Kansas City
Gentry, Enoch Nelson, Jr.....Kansas City
Gentry, Marvin Carrol.....Ava
Gentry, Merritt L.....Springfield
George, Charles A.....Springfield
Geraughty, Edward.....Kansas City
Gerst, Aloysius C.....St. Louis
Gerwitz, Bernard W.....St. Louis
Gestring, Hugh A.....Kansas City
Getelson, Joseph.....Kansas City
Gettinger, Andrew J.....St. Louis
Gettys, Henry.....St. Louis
Gibson, Edward T.....Kansas City
Gibson, Helen F.....St. Louis
Gibson, Ora James.....Cape Girardeau
Gibson, Walter E., Sr.....DeSoto
Gifford, Allen William.....Springfield
Gildea, Margaret C. L.....St. Louis
Gilkey, Harry M.....Kansas City
Gilles, Clifford L.....Kansas City
Gillham, Frank W.....Jefferson City
Gillick, Frederick G. San Francisco, Calif.
Gilliland, Charles E.....St. Louis
Gilliland, Oliver S.....Kansas City
Gillmor, Charles S....Greenwich, Conn.
Ginsberg, A. Morris.....Kansas City
Ginsberg, Edward L.....Kansas City
Ginsberg, Norman A.....Kansas City
Gissy, Charles J.....St. Louis
Gist, William L.....Kansas City
Gist, William W.....Kansas City
Gitt, Joseph Julian.....St. Louis
Glasco, Loren A.....Urbana
Glaser, Joseph L.....Denver, Colo.
Glaser, Martin J.....St. Louis
Glasgow, Marvin C.....Cardwell
Glassberg, Bertrand Y.....St. Louis
Glasscock, Ernest L.....Kansas City
Glasscock, James R.....Richmond, Va.
Glaze, Kenneth F.....St. Louis
Glenn, Elmer E.....Springfield
Glenn, Joseph E.....St. Louis
Glennon, William P.....St. Louis
Glick, Harry N.....St. Louis
Glover, Kenneth.....Mount Vernon
Glynn, Robert.....Springfield
Godfrey, George B.....St. Louis
Godfroy, B. M.....Roscommon, Mich.
Godwin, Robert W.....Address Unknown
Goebel, Joan M.....St. Louis
Goerger, Verne F.....St. Louis
Goerner, Paul G.....Kansas City
Goetsch, Anne T.....St. Louis
Goetze, William F.....St. Joseph
Goforth, Clifford.....Doniphan
Goldberg, I. E.....Kansas City
Goldenson, Max J.....St. Louis
Goldman, Alfred.....St. Louis
Goldman, Hyman J.....St. Louis
Goldman, Lawrence.....St. Louis
Goldman, Max.....Kansas City
Goldwasser, Herbert V.....St. Louis
Goodman, LeRoy.....Kansas City
Goodman, Nathaniel.....St. Louis
Goodrich, Charles F.....Washington
Goodrich, Harold A.....Webster Groves
Goodrich, Howard B.....Hannibal
Goodson, William H.....Liberty
Goodson, William H., Jr.....Kansas City
Gorelick, David F.....Columbia
Gorla, Wayne O.....St. Louis
Gottlieb, Leo.....Camp Gruber, Okla.
Gottschalk, Helen C. Reller....St. Louis
Gowen, Leo F.....Glendale
Grabske, Charles F.....Santa Ana, Calif.
Grace, Clarence M.....Chillicothe
Grace, John F.....Excelsior Springs
Gradwohl, R. B. H.....St. Louis
Graeser, Richard G.....Kirkwood
Graham, Evarts, A.....St. Louis
Graham, James W.....Kansas City
Graham, John G., Jr.....Detroit, Mich.
Graham, Wallace H....Washington, D. C.
Grandstaff, Eleanor H.....Kansas City
Graneto, Joseph A.....St. Louis
Grant, Claude S.....St. Joseph
Grant, Samuel B.....St. Louis
Grantham, Samuel A., Jr.....Joplin
Grauerholz, James W.....Kansas City
Graul, Elmer G.....St. Louis
Graul, Walter P.....Ferguson
Graves, George Tivis....Memphis, Tenn.
Graves, William W.....St. Louis
Gray, James A.....Watson
Gray, John M.....Chitwood
Gray, Samuel H.....St. Louis
Gray, Walter C.....St. Louis
Greaves, Eli A.....Kansas City
Green, John.....St. Louis
Green, John R.....Independence
Green, Stanley L.....Independence
Greenberg, Charles.....St. Joseph
Greene, Harry L.....Hannibal
Greene, Joseph Wayne....Independence
Greene, Luther D.....Richmond
Greene, Maurice L.....St. Louis
Greene, W. Wallace.....Kansas City
Greenhouse, J. M.....St. Louis
Gregg, Arthur M.....Joplin
Greiner, Theodore.....St. Louis
Griffin, Fred.....Mexico
Griffin, M. Evelyn P.....Buffalo
Griffin, Olin A., Jr.....Buffalo
Griffith, Edgar M.....Harrisonville
Griffith, George W.....Kansas City
Griffith, George W.....Address Unknown
Griffith, Harry Milton.....Columbia
Griffiths, Harry C.....Moberly
Grim, George E.....Kirksville
Grimes, M. E.....St. Joseph
Grindon, Joseph, Jr.....St. Louis
Grindon, Jos., Sr...San Francisco, Calif.
Griot, Albert J.....St. Louis
Griot, Arthur J.....Springfield
Griot, George A.....Springfield
Grogan, Frank M.....St. Louis
Gronau, Axel R.....St. Louis
Gronoway, Terrence P.....Macon
Gross, Joseph L.....St. Louis
Grosskreutz, Joseph A.....St. Louis
Grossman, Marvin.....Fredericktown
Grove, G. W.....Knobnoster
Growdon, John A.....Kansas City
Grueb, Paul M.....St. Louis
Gruenfeld, Gerhard E.....St. Louis
Grundmann, William H.....St. Louis
Guccione, Joseph B.....St. Louis
Guffey, Don Carlos.....Kansas City
Guggenheim, Lewis C.....Kansas City
Guhman, Charles N.....St. Louis
Guldner, Edmond.....Lamar
Gulick, Charles R.....St. Louis
Gum, William R.....St. Louis
Gummels, Belmont B.....St. Louis
Gundelach, C. Armin.....St. Louis
Gundlach, Arthur.....St. Louis
Gunn, Aubrey J.....Versailles
Gunn, Walter T.....St. Louis
Gunn, William G.....Versailles
Guthrie, John A.....Neosho
Guyot, J. DeVoine.....Jefferson City
Gzell, Ronald.....St. Louis

—H—

Hackmeyer, Rubin.....St. Louis
Haffner, Heinz.....Ft. Sheridan, Ill.
Hagebusch, Omer E.....St. Louis
Hageman, Paul O.....Clayton
Haggen, Margaret E.....Kansas City
Haile, Leon C.....St. Louis
Hale, Tyre H.....St. Louis
Haley, Roy R.....Brookfield
Hall, Andy, Jr.....St. Louis
Hall, D. Walton.....Kansas City
Hall, Durward G.....Springfield
Hall, Frank W.....Cape Girardeau
Hall, James R.....Kansas City
Hall, Lee.....Maplewood
Hall, Marvin F.....Joplin
Hall, Preston C.....St. Louis
Hall, Robert A.....St. Louis
Hall, Robert G.....Nevada
Hall, Thomas Bryan.....Kansas City
Hall, Willis.....St. Louis
Hallberg, John W.....Kansas City
Halperin, Phillip H.....Kansas City
Hamilton, Buford G.....Richmond



To restore nasal patency in colds and sinusitis . . .

Neo-Synephrine decongests promptly . . . clears the nasal airways for greater breathing comfort . . . promotes sinus drainage. Relief lasts for several hours. Virtual freedom from compensatory vasodilatation precludes development of dependency symptoms.

Neo-Synephrine

BRAND OF PHENYLEPHRINE

For Nasal Decongestion

THERAPEUTIC APPRAISAL: Prompt, prolonged nasal decongestion without appreciable compensatory recongestion; virtual freedom from local and systemic side effects; sustained effectiveness on repeated use.

INDICATED for symptomatic relief of the nasal congestion of common colds, sinusitis and allergic rhinitis.



ADMINISTRATION may be by dropper, spray or tampon, using the ¼% in most cases, the 1% when a stronger solution is indicated.

SUPPLIED as ¼% and 1% in isotonic saline and ¼% in Ringer's with aromatics, bottles of 1 fl. oz.; ½% jelly in convenient applicator tubes, ⅝ oz.

Stearns

DETROIT 31, MICHIGAN

NEW YORK KANSAS CITY SAN FRANCISCO WINDSOR, ONTARIO SYDNEY, AUSTRALIA AUCKLAND, NEW ZEALAND

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Hamilton, Caldwell K.....St. Louis
Hamilton, Eugene G.....St. Louis
Hamilton, Eugene H.....Joplin
Hamilton, Eugene P.....Kansas City
Hamilton, Hugh G.....Kansas City
Hamilton, William P.....St. Louis
Hamlett, William H.....St. Louis
Hammler, Christiana V.....St. James
Hammond, John J.....St. Louis
Hampton, Joseph R.....Clinton
Hampton, Oscar P., Jr.....St. Louis
Hampton, Stanley F.....St. Louis
Hamtil, Edward William.....St. Louis
Hanan, Ernest B.....Springfield
Handley, Walter E.....Springfield
Hanford, Wesley W.....St. Louis
Hanks, Ralf.....Nevada
Hanlon, Thomas J.....St. Louis
Hans, Willard J.....St. Louis
Hansel, French K.....St. Louis
Hansen, Arthur L.....Appleton City
Hansen, Walter Joseph.....St. Joseph
Hanser, S. Albert.....St. Louis
Hanser, Theodore H.....St. Louis
Hanss, Armand W.....Springfield
Hardacre, Ruth Anna.....Kansas City
Hardegree, Harvey.....Bronx, N. Y.
Hardesty, Joel W.....Hannibal
Hardesty, John F.....St. Louis
Harding, Carl W.....Grandview
Hardy, Guerdan.....St. Louis
Hardy, John W.....Sumner
Hardy, Joseph A., Jr.....St. Louis
Hardy, William F.....St. Louis
Hargrove, Fred T.....Monett
Harkins, William B.....Philadelphia, Pa.
Harkness, Harry.....Warrensburg
Harlan, Delly Lee.....Clarence
Harland, R. E.....Ironton
Harless, Morris S.....Kansas City
Harmann, Martin F.....St. Louis
Harms, Florian L.....Salisbury
Harpole, Bernard P.....Ft. Wayne, Ind.
Harrell, Henry J.....Morrisville
Harrell, Roosevelt E.....Lebanon
Harrington, G. Leonard.....Kansas City
Harris, Charles W.....St. Louis
Harris, Downey L.....St. Louis
Harris, Harold S.....Troy
Harris, Irwin J.....St. Louis
Harris, Russell D.....Cleveland, Ohio
Harris, Solon P.....St. Louis
Harris, Thomas S.....Springfield
Harrison, Addison M.....Kansas City
Harrison, John Frank.....Mexico
Harrison, Lee B.....St. Louis
Harrison, Stanley L.....St. Louis
Harsh, Ralph T.....Houston
Hart, Martin M.....Salem
Hart, Pearl Vance.....Coatesville
Hart, William W.....Kansas City
Hartigan, Frank X.....St. Joseph
Hartmann, Alexis F.....St. Louis
Hartnett, Dalton C.....St. Louis
Hartnett, Leo J.....St. Louis
Hartwell, Basil O.....Drexel
Hartwig, John Adam.....St. Louis
Harwell, James Lee.....Poplar Bluff
Harwell, J. Lester.....Poplar Bluff
Harwood, Samuel R.....Sullivan
Hashinger, Edward H.....Kansas City
Haskell, Claude D.....Tarkio
Hassett, Henry A.....St. Louis
Haw, Marvin T., Jr.....Bonne Terre
Hawker, William D.....St. Louis
Hawker, William Davis.....St. Louis
Hawkins, George W.....Salisbury
Hawkinson, W. O.....Roanoke
Hayden, Loyola F.....St. Louis
Hayden, Ralph O.....St. Charles
Haynes, Lee.....Kansas City
Haynes, Pugh, Jr.....St. Louis
Haynes, Robert Clark.....Marshall
Haynes, Solon Earl.....Kansas City
Hayward, John D.....St. Louis
H'Doubler, Francis T.....Springfield
Head, John Francis.....Oak Park, Ill.
Hearst, Allen L.....Kansas City
Heaton, Asa H.....Sedalia
Heid, Lloyd L.....St. Louis
Heideman, Alvah G.....St. Louis
Heideman, Milo L.....St. Louis
Heidenreich, Harry L.....St. Louis
Heifetz, Carl J.....University City
Heimburger, Leroy F.....Springfield
Heinbecker, Peter.....St. Louis
Heinrichs, J. C.....St. Louis
Helbing, Edward J.....St. Louis
Helbing, Harry H.....St. Louis
Heller, B. Marcus....Address Unknown
Heller, Edward P.....Kansas City
Hellweg, Charles E.....Mount Vernon
Helm, James O.....New Florence
Helman, Richard G.....Kansas City
Helwig, Ferdinand C.....Kansas City
Hemphill, Paul H.....Kansas City
Henderlite, John W.....St. Louis
Hendin, Aaron.....St. Louis
Hendren, Glenn W.....Liberty
Hengen, Henry E.....Pattonville
Henke, Charles F.....St. Louis
Hennelly, John Joseph.....St. Louis
Hennerich, Walter E.....St. Louis
Henrickson, Hardin M.....Poplar Bluff
Henry, Clifford E.....Kirksville
Henry, Frank C.....Jefferson Barracks
Henske, Andrew C.....St. Louis
Henson, Lafayette L.....Bunker
Herbert, Charles T.....Cape Girardeau
Herbst, Frank.....Kansas City
Herdener, Russell L.....Webster Groves
Herington, Warner.....Green City
Herman, Alfred.....St. Louis
Herman, Allen I.....Springfield
Herman, Morris.....St. Louis
Herrick, Harold C.....St. Louis
Herrman, George V.....Kansas City
Herrmann, Gustav J.....St. Charles
Herron, W. Floyd.....Aurora
Hertel, Albert L.....St. Louis
Hess, H. Lewis.....Kansas City
Hess, Paul D.....Kansas City
Hetherington, Ellery M.....Kansas City
Hewitt, A. Lee....San Francisco, Calif.
Hewitt, Walter R.....St. Louis
Hibbard, Blaine Zook..Address Unknown
Hickerson, John C.....Independence
Hickerson, William H.....Independence
Hickey, Robert F.....St. Louis
Hicks, Edward A.....Troy
Hieb, Wilbert E.....New York, N. Y.
Higgins, Clinton K.....St. Louis
Higgins, Robert F.....St. Louis
Highsmith, L. S.....Philadelphia, Pa.
Hildreth, H. Rommel.....St. Louis
Hill, Jack H.....Kansas City
Hill, Jesse N.....Independence
Hill, Roland.....St. Louis
Hilliard, John D.....Ft. Monmouth, N. J.
Hines, Arthur A.....St. Louis
Hines, Paul.....Webster Groves
Hink, Frederick W.....Kansas City
Hirsch, Albert.....Middletown
Hirschi, William T.....University City
Hirschler, A. E., Jr. Address Unknown
Hite, Henry A.....Green Ridge
Hoadley, Joseph E.....Gillette, Wyo.
Hobart, Carl A.....St. Louis
Hobbs, Alonzo G.....St. Louis
Hobbs, Clarence L.....St. Louis
Hobbs, Earl B.....Smithville
Hobbs, John E.....St. Louis
Hoctor, Emmett F.....Farmington
Hodge, Robert H.....Kansas City
Hodgson, Frank H.....Kansas City
Hoefer, Walter H. V.....St. Louis
Hoelscher, Harold F.....Warrenton
Hoffman, A. David.....St. Louis
Hoffman, Jacob S.....Kansas City
Hofmann, Ottokar.....Kansas City
Hoffmann, R. Lee.....Kansas City
Hofmeister, Rudolph.....St. Louis
Hofsommer, Armin C....Webster Groves
Hofstatter, Leopold.....St. Louis
Hogan, Daniel F.....Kansas City
Hogan, Frank E.....Mound City
Hogan, Robert E.....West Plains
Hogeboom, George W.....Springfield
Hogg, Garrett S., Jr.....Cabool
Hogue, Frank S.....Kansas City
Hoke, Wilbur J.....St. Louis
Holbrook, Walter F.....Kansas City
Holden, Raymond F.....St. Louis
Holdenried, William E.....St. Louis
Holliday, Morgan Lee.....Fillmore
Hollingsworth, Ray S.....Clinton
Hollis, Luther T.....Kansas City
Hollister, Wilbur L...Corpus Christi, Tex.
Hollo, Vencel W.....Florissant
Hollweg, Kenneth C.....Kansas City
Holman, Jurney H.....Unionville
Holmes, Lemuel Isaac.....Miller
Holmes, Mansell B.....Tuscaloosa, Ala.
Holmes, Prince Albert....Mount Vernon
Holscher, Edward C.....Webster Groves
Holt, Robert E.....Ft. Belvoir, Va.
Holtgrewe, Frederick W.....St. Louis
Holtzen, Ernest E.....Smithton
Homan, J. S.....St. Louis
Honigh, Nicholas J.....St. Louis
Hook, Waller C.....Kansas City
Hooss, Albert .....St. Louis
Hoover, H. Lee, Jr.....Springfield
Hope, James L.....Lebanon
Hopkins, F. G.....Gideon
Hopkins, Thomas A.....St. Louis
Hopson, George.....DeSoto
Horigan, Joseph A.....Kansas City
Hornback, Edward R.....Joplin
Hornback, Edward T.....Hannibal
Hornback, George A.....Hannibal
Horne, Albert H.....Steelville
Horner, John L.....St. Louis
Horst, Otto C.....Springfield
Horton, James D.....Springfield
Horwitz, Irwin B.....St. Louis
Hoshor, John C.....Savannah
Hosto, Leland E.....St. Louis
Hotz, John W.....St. Louis
Houck, Russell M.....Excelsior Springs
Howard, Harvey J.....St. Louis
Howard, John C., Jr.....Kansas City
Howard, Joseph W.....Kansas City
Howard, Walter M.....Joplin
Howden, Thomas L.....St. Joseph
Howe, Louis Francis.....Brentwood
Howell, James Albert....Muskogee, Okla.
Hoxie, Derrick Antill..Portsmouth, Va.
Hoxie, George H.....Berkeley, Calif.
Hrdlicka, Victor E.....St. Louis
Huber, Erwin T.....St. Louis
Huber, Lasley Earl .....Moberly
Huber, Melvin J.....St. Louis
Huck, Frank F.....Fenton
Hughes, Clarence O.....Ferguson
Hughes, Edgar O.....Dixon
Hughes, Judson Martin.....St. Joseph
Hughes, Shelby B.....Clinton
Hull, Walter S.....St. Joseph
Humberd, Charles D.....Barnard
Hume, Harold C.....Tipton
Hummel, Anton J.....St. Louis
Humphrey, Henry M.....Brashear
Hungate, Carroll P...Address Unknown
Hunt, Claude J.....Kansas City
Hunt, John W., Jr.....Leadwood
Hunt, Lloyd H.....Salem
Hunt, W. J.....St. Joseph
Hunter, Martin P.....Kansas City
Hurford, Phelps G.....St. Louis
Hurst, Ben B.....Marceline
Hurst, Martin J.....New Orleans, La.
Hurst, W. W.....Joplin
Hurwitt, Frank.....Kansas City
Hutto, A. Herman.....St. Louis
Hutton, Joseph Lewis.....St. Louis
Hux, William J.....Essex
Hyatt, William T.....St. Louis
Hyde, Frank.....Eminence
Hyland, Robert F.....St. Louis
Hyndman, Charles E.....St. Louis

—I—

Imes, Elvin D.....Maryville
Irick, Carl C.....Webster Groves
Irland, Robert D.....Kansas City
Irwig, Fred.....Kansas City
Irwin, William F.....Leasburg
Isbell, Charles H.....Carthage
Ishida, Hiraku.....Los Angeles, Calif.
Ittner, George W., Jr.....St. Louis
Ives, George.....St. Louis

—J—

Jackson, Carl A.....Kansas City
Jackson, Douglas A.....Kansas City
Jackson, William R.....Kansas City
Jackson, William R.....Maryville
Jacob, Rudolph D...San Francisco, Calif.
Jacob, Walter.....Kansas City
Jacobs, Frederick A.....St. Louis
Jacobs, Gustave E.....St. Louis
Jacobson, Henry.....St. Louis
Jaime, Nicholas.....Kansas City
James, Edward D.....Joplin
James, Joseph D.....Springfield
James, Luther S.....Marshall
James, Robert M.....Jefferson City
James, William M.....St. Louis
Jansen, Richard W.....Manchester
Jansen, Robert.....Kansas City
Jarvis, James A.....Kansas City
Jaudon, Benjamin Y.....Webster Groves
Jaudon, Joseph C.....Webster Groves
Javaux, Everett J.....St. Louis
Jean, J. Ted.....St. Louis
Jeffries, Robert C.....Kansas City
Jenkins, Joseph M.....St. Charles
Jenkins, Paul A.....Lebanon
Jennett, Harry N.....Kansas City
Jennett, James Harvey.....Kansas City
Jennings, P. W.....Canton
Jennings, Robert J.....Windsor

Jensen, J. Ernest.....St. Louis
Jensen, Julius.....St. Louis
Jesgar, William.....St. Louis
Jessell, C. Todd.....Address Unknown
Johansen, Frederick A.....Carville, La.
Johnson, Charles H.....St. Louis
Johnson, Charles S.....Warrensburg
Johnson, Delbert P.....Address Unknown
Johnson, Edgar W.....Kansas City
Johnson, Edgar W., Jr.....Kansas City
Johnson, Edward E.....Joplin
Johnson, Glenn D.....Maysville
Johnson, Grover C.....Marthasville
Johnson, Mitchell D...Address Unknown
Johnson, Paul A.....Kansas City
Johnson, Roy.....Ferguson
Johnson, Thomas Maxwell..Kansas City
Johnson, William F.....Crete, Nebr.
Johnston, A. D.....Ft. Scott, Kansas
Johnston, Joseph LeRoy.....Springfield
Johnstone, Paul Nugent....Kansas City
Jolley, J. Frank.....Mexico
Jolly, Benjamin N.....St. Charles
Jolly, William H...New Brunswick, N. J.
Jones, Andrew B.....St. Louis
Jones, Augustin.....Clayton
Jones, Dorothy J.....St. Louis
Jones, Edward E.....Lilbourn
Jones, Garnett.....St. Clair
Jones, George H.....Kansas City
Jones, Harry Lander.....Kansas City
Jones, James B.....Brentwood
Jones, John Grey.....St. Louis
Jones, Kneeland P.....Kansas City
Jones, Maurice L.....Kansas City
Jones, Otey Sherman.....St. Louis
Jones, Theodore R.....Address Unknown
Jones, Vincent L.....St. Louis
Jones, William E.....St. Louis
Jordan, Walter R.....St. Louis
Jordan, Edward J.....St. Louis
Jordon, James E.....Maplewood
Jorstad, Louis H.....St. Louis
Joseph, George E.....Salem
Joslyn, Harold L.....San Francisco, Calif.
Jost, Charles A.....Address Unknown
Jost, William E.....St. Louis
Jostes, Frederick A.....St. Louis
Juarez-Reyna, Guillermo....Kansas City
Juden, Alexander G.....Cape Girardeau
Judy, Joseph D.....Ferguson
Jungk, Carl G. W.....St. Louis

—K—

Kallenbach, G. P.....Mexico
Kampschmidt, August W.....Columbia
Kane, Clyde E.....St. Louis
Kane, R. Emmet.....St. Louis
Kanagowa, H.....Jefferson City
Kaplan, Albert.....St. Louis
Karl, Michael M.....St. Louis
Karn, Robert B.....St. Louis
Kaskie, Clifford R.....St. Louis
Katz, Samuel D.....St. Louis
Kealhofer, George C.....Kansas City
Kearby, Howard Denton.....St. Joseph
Kearney, Elmer F.....Oregon
Keeble, Charles B.....St. Louis
Keeling, Forrest V.....Elsberry
Keeling, Irene C.....Kansas City
Keffler, Karl L.....St. Louis
Kehoe, J. Joseph.....St. Louis
Keim, John Harry.....Cape Girardeau
Keim, John P.....St. Louis
Keith, Willis E.....Kansas City
Keller, Joseph M.....St. Louis
Keller, Louis.....Sunmount, N. Y.
Keller, Robert M.....St. Louis
Kelley, Gilbert B.....Savannah
Kelley, Isaac D.....Great Lakes, Ill.
Kelley, Robert W.....St. Louis
Kelley, Walter L.....Affton
Kelling, Douglas George.....Waverly
Kelling, George A.....Waverly
Kelling, Jordan.....Waverly
Kelly, Charles A.....St. Louis
Kelly, Eugene H.....Kansas City
Kelly, Marshall W.....Jefferson City
Kelly, R. Emmet.....St. Louis
Kelly, Robert Q.....Marshall
Kelly, William.....Springfield
Kenamore, Bruce.....St. Louis
Kendall, Edward A., Jr..Granite City, Ill.
Kendis, Joseph B.....St. Louis
Kennedy, Francis L.....St. Louis
Kennedy, John Oscar.....Kansas City
Kennedy, Robert W.....Marshall
Kennedy, Thomas R.....St. Louis
Kenney, Verna Elbert.....Joplin
Kent, Bela Kaszas.....Kansas City
Kent, Clifford F.....Kansas City
Kerr, Frank Taylor.....Monett
Kerr, Homer L.....Crane
Kerr, Russell W.....Kansas City
Kessler, Joseph John.....St. Louis
Ketcham, William M.....Kansas City
Ketron, Marvin B.....Kansas City
Kettelkamp, George D.....St. Louis
Key, J. Albert.....St. Louis
Keyes, E. Lawrence.....St. Louis
Kibbe, Edgar A.....California
Kibbe, John A.....Monroe City
Kiefer, R. W.....St. Joseph
Kieffer, Roland S.....St. Louis
Kieffer, Victor B.....St. Louis
Kienberger, Paul A.....Kansas City
Kiene, Richard H.....Kansas City
Kienzle, Edward C.....St. Louis
Kilker, Clarence H.....St. Louis
Killion, John J.....Portageville
Kimberlin, Herbert C.....Trenton
Kimes, Ira D.....Cameron
King, George W.....St. Louis
King, John V.....Webster Groves
King, Samuel J.....St. Louis
Kingsland, Robert C.....Clayton
Kinner, Helmuth M.....St. Louis
Kinsella, R. A.....St. Louis
Kirchner, Walter C. G.....St. Louis
Kirk, Charlie W.....Hopkins
Kirkpatrick, Harry E.....Itasca, Ill.
Kirstein, Melvin B.....St. Louis
Kirtz, Louis P.....St. Louis
Kister, George E.....St. Charles
Kitchell, William Everett.....St. Clair
Kitchen, William B.....Glasgow
Kitchen, William M.....Kansas City
Klebba, Larry B.....Jefferson City
Klein, Andrew G.....St. Louis
Klein, Arnold G.....St. Louis
Klein, Bert H.....St. Louis
Klein, Edward H.....Kansas City
Klein, Harry A.....St. Louis
Kleinschmidt, Clinton.....St. Louis
Klemme, Roland M.....St. Louis
Klenk, Charles L.....St. Louis
Klepinger, Dayton P.....Kansas City
Klingel, Robert L...Rehobeth Beach, Del.
Klingner, George M.....Springfield
Klingner, Thomas O.....Springfield
Klinkerfuss, George Henry.....St. Louis
Klippel, Allen P.....St. Louis
Klippel, Bernhardt W.....St. Louis
Klippel, Edward T.....St. Louis
Kloecker, Herman J.....Overland
Kloeppel, Carl F.....Kirkwood
Kloepper, Victor F.....St. Louis
Kluegel, William.....St. Louis
Knabb, Arthur D.....Springfield
Knabb, Frank P.....Valley Park
Knabb, Henry F.....Springfield
Knabb, Kenneth E.....Springfield
Knapp, Rudolph.....Golden City
Knappenberger, George E...Kansas City
Kneal, E. Ellsworth.....St. Louis
Kneibert, Fred Louis.....Poplar Bluff
Knepper, P. A.....St. Joseph
Knerr, Ellsworth B...Address Unknown
Knese, Luke A.....St. Louis
Knight, John S.....Kansas City
Knight, Lyle B.....Lees Summit
Knight, William A.....St. Louis
Knight, Wm. A., Jr...Minneapolis, Minn.
Knoke, Frederick W., Jr.....St. Louis
Knowles, Roy F.....Rolla
Knox, A. C.....Kansas City
Knox, Earl R.....North Kansas City
Koch, Otto W.....Clayton
Koch, Robert E.....Clayton
Koeb, Roland A.....St. Louis
Koehler, Charles A.....Kansas City
Koenig, Frank J.....Kansas City
Koenig, George H.....Kirkwood
Koenig, Karl F.....St. Louis
Koessel, Arthur W.....St. Louis
Kohler, Eugene J.....St. Louis
Kohler, Louis H.....St. Louis
Kohn, Cecil M.....Kansas City
Konzelmann, John Albert.....St. Louis
Koon, Bernard T.....St. Louis
Kopp, Jules H.....St. Louis
Koppenbrink, Walter E.....Higginsville
Koritschoner, Robert.....Kansas City
Korth, William M.....Kansas City
Kotkis, A. J.....St. Louis
Kotner, Lawrence M.....St. Louis
Kountz, William B.....St. Louis
Kouri, Martin F.....St. Louis
Kovitz, Louis.....Kansas City
Kraft, Edward O.....St. Louis
Kramer, Fred.....St. Louis
Kramolowsky, Helmuth H.....St. Louis
Kranson, Seymour J.....Independence
Krause, G. Lynn.....St. Louis
Krause, Irl B.....Jefferson City
Krebs, Frank J. V.....St. Louis
Krebs, Joseph M.....New York, N. Y.
Krebs, Otto S.....St. Louis
Krenning, William G.....St. Louis
Kroeger, George B.....St. Louis
Krueger, Owen W.....Kansas City
Kubitschek, Paul E.....St. Louis
Kuenkel, Victor H.....St. Louis
Kuhn, John R., Jr.....Joplin
Kuhn, William F., II.....Kansas City
Kuritz, Albert B.....Memphis, Tenn.
Kurth, Robert K.....St. Louis
Kurtzeborn, Edwin E.....St. Louis
Kurz, Rudolph F.....St. Louis
Kyger, E. Ross.....Kansas City
Kyger, Fred B.....Kansas City
Kyner, Thomas A.....Kansas City

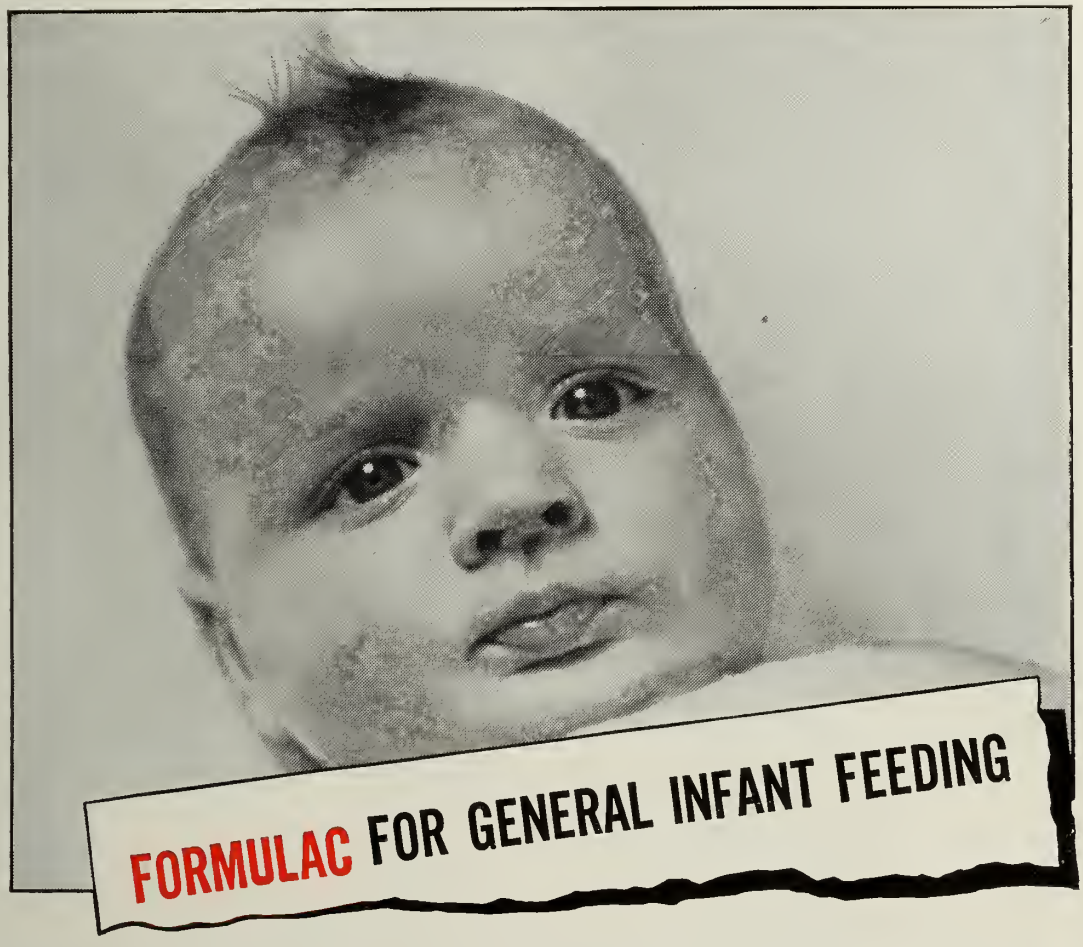
—L—

Lachance, Leopold.....Centralia
Lacy, N. Eugene.....Kansas City
Laffoon, France L.....Raytown
LaHue, L. D.....Butler
Lakaytis, Charles A.....Kansas City
Lamar, Frederick C.....Kansas City
Lamb, Harvey D.....St. Louis
Lambert, Marian.....Princeton
Lamson, Roy C.....Neosho
Lancaster, Herschel W.....Nevada
Landau, Daniel B.....Hannibal
Landree, James C.....St. Louis
Lane, Clinton W.....St. Louis
Laney, Ronald L.....Joplin
Langan, William J., Jr.....St. Louis
Lange, Adolph C.....St. Louis
Langenbach, Alfred M.....St. Louis
Langford, E. K.....Platte City
Langhus, Melvin O...North Kansas City
Langston, W. R.....Springfield
Laning, J. H.....Kansas City
Lanning, Richard Charles.Ste. Genevieve
Lanning, Robert J.....St. Louis
Lanning, Robert W.....Ste. Genevieve
Lansche, Elmer Arnold.....St. Louis
Lanzafame, S. Anthony.....Farmington
Lapp, Harry C.....Kansas City
Lapp, John G.....Kansas City
Large, A. M.....St. Louis
Larimore, Joseph W.....St. Louis
Larsen, Kenneth V.....St. Louis
Latham, Kenyon S.....California
Latham, Logan L.....California
Lau, Gustav A.....St. Joseph
Laurenzana, Frank Paul....Kansas City
Lawless, Charles L.....Marshall
Lawrence, John Richard.....Marshall
Lawrence, John V.....St. Louis
Laws, Clarence J.....Princeton
Lawton, Thomas P.....St. Louis
Layton, Ira C.....Kansas City
Leaming, H. A.....Joplin
Leavy, Charles A.....St. Louis
LeBlanc, Leo J.....Rochester, Minn.
LeCompte, Elmo M.....Brookline Station
Lederman, Joseph.....St. Louis
Lee, A. C.....Illmo
Lee, Chester E.....Kansas City
Lee, Elbert J., Jr.....St. Louis
Lee, George C.....Kansas City
Leech, Charles A.....Columbia
Leech, Maurice P.....Fayette
LeFevre, Harry M.....Shelbyville
LeHew, Robert M.....Neosho
Lehner, Richard L.....Kansas City
Leidler, Franz.....St. Louis
Leifer, William W.....Kansas City
Leighton, William E.....St. Louis
Leitch, Cecil George.....Kansas City
Leitz, Frank Bantley.....Kansas City
Lembeck, Joseph A.....St. Louis
Lemen, Lois E.....St. Louis
Lemmon, George B.....Springfield
Lemmon, G. Bruce, Jr.....Springfield
Lemoine, Albert N.....Kansas City
Lemoine, A. N., Jr.....Kansas City
LeMone, David V.....Columbia
Lennon, Benjamin B.....Kansas City
Lentz, Harold C.....Neosho
Leonard, Ward H...Kansas City, Kansas
Lerner, Abe F.....University City
Leslie, Charles H.....Kirkwood
Leslie, James F.....Springfield
Leslie, J. T.....Jefferson City
Leslie, Walter L.....Russellville
Lester, Rollo B.....Nevada
Leusley, Marvin E.....Moberly
Levey, Harry B.....Kansas City
Levey, Simon A.....St. Louis
Levin, Sidney Saul.....St. Louis
Levy, Irwin.....St. Louis

Lewellen, Charles H.....Louisiana
Lewellen, Charles P.....Louisiana
Lewis, Andrew L.....Sumner
Lewis, William E.....Kansas City
Leydig, Stanley M.....St. Louis
Lieberman, B. Albert.....Kansas City
Lieberman, B. Albert, Jr.....Kansas City
Liersch, Joseph C.....Kansas City
Liese, Grover B.....St. Louis
Liggett, Hiram S.....St. Louis
Lillard, Archie H.....LaBelle
Lilly, Terry Erastus.....Kansas City
Limbaugh, Walter R.....Hayti
Lindeman, Carl H.....St. Louis
Lindquist, Carl N.....Kansas City
Lindsay, John W.....Conway
Link, Vance Eugene.....Independence
Linton, C. S.....Kennett
Lionberger, John R., Jr..South Bend, Ind.
Lischer, Carl E.....Phoenixville, Pa.
Lissack, Edmund.....Concordia
Liston, Odus.....Oakgrove
Littauer, David.....Kansas City
Littmann, Lewis E.....Clayton
Locker, George E.....Iantha
Lockwood, Ira H.....Kansas City
Lockwood, W. E.....Slater
Loeb, Virgil.....St. Louis
Loeffel, Ellen S.....St. Louis
Loewenstein, Harry M.....St. Louis
Logan, James A.....Warsaw
Lohr, Curtis H.....St. Louis
Londe, Sol.....St. Louis
Long, David S.....Harrisonville
Long, Forrest C.....Savannah
Long, Frank B.....Sedalia
Longfield, Fred J.....Lathrop
Lonsway, Maurice J.....Clayton
LoPiccolo, Vincent J.....St. Louis
Love, Joseph W.....Springfield
Love, Joseph W.....Nevada
Love, Walter S.....Nevada
Loveland, William S.....Joplin
Loving, B. Rush.....Ballwin
Lowe, Horace A.....Springfield
Lowenstein, Paul S.....St. Louis
Lower, Mary J.....Kansas City
Lowrey, Ford Jackson.....Kansas City
Lowry, Charles F.....Kansas City
Lowry, Henry L.....Tindall
Lucas, John H.....Brookfield
Lucas, William B.....Mendon
Lucido, Joseph L.....San Francisco
Lucke, Eugene M.....Hannibal
Luckey, Horace Leslie.....Maplewood
Luedde, Fullerton W.....St. Louis
Luedde, Phillip S.....St. Louis
Luedde, William H.....St. Louis
Luman, Frank E.....Edina
Lund, Herluf G.....St. Louis
Luppens, Albert F.....Kansas City
Lusk, Charles A.....Butler
Lusk, Charles A., Jr.....Butler
Luten, Drew W.....St. Louis
Luten, Joseph B.....Caruthersville
Luter, Carter W.....Butler
Luton, L. S.....St. Louis
Lux, Paul.....Kansas City
Lyddon, Harold R., Jr.....Kansas City
Lyman, Edward H.....St. Louis
Lyman, Harry W.....St. Louis
Lytle, William R.....Waynesville
Lyttle, G. C.....St. Louis
Lytton, William B.....Webster Groves

—M—

McAdam, C. Rush.....St. Louis
McAdams, James D.....Prairie Hill
McAlester, Andrew W., Jr...Kansas City
McAlester, Andrew W., III..Kansas City
McBratney, Emmett W.....St. Louis
McBurney, C. A.....Slater
McCall, Edwin L.....Brentwood
McCall, Greene D.....Fulton
McCall, William K.....Laddonia
McCalman, Ira J.....Kansas City
McCandless, Oliver H.....Kansas City
McCarroll, Henry R.....St. Louis
McCarthy, Eugene F.....St. Louis
McCarthy, William F.....Independence
McCarty, Virgil Warren.....Kansas City
McCaughan, John M.....St. Louis
McClanahan, Robert C.....Kansas City
McClure, Thomas C.....Sikeston
McComas, Arthur R.....Sturgeon
McCormick, F. L.....Moberly
McCracken, Samuel R...Excelsior Springs
McCraw, Doyle C.....Bolivar
McCrory, James L.....St. Louis
McCubbin, Clarence Roy....Kansas City
McCubbin, J. Burleigh.....Fulton
McCulloch, Hugh.....St. Louis
McDonald, Eugene F.....Mexico
McDonald, George H.....St. Louis
McDonald, George J...Address Unknown
McDonald, Wilbur P.....St. Joseph
McDonnell, John F...Lawrence, Kansas
McDowell, Frank S.....St. Louis
McElroy, Glenn L.....Springfield
McElvain, Robert C.....St. Louis
McFadden, James F.....St. Louis
McFarland, A. Sidney.....Rolla
McFarland, M. D.....Kansas City
McGennis, Patrick.....St. Louis
McGinnis, Byron J.....St. Louis
McGinnis, William F.....St. Louis
McGlothlan, Arthur B.....St. Joseph
McGuire, William A.....St. Louis
McGurk, Thomas Edward.....St. Louis
McHale, Thomas C.....Kansas City
McHaney, H. A.....Kennett
McHaney, John W.....Jefferson City
McIntire, Emery J.....Carthage
McKee, Joseph W.....Kansas City
McKinney, Ralph F.....Warrensburg
McKinstry, Karl V.....DeSoto
McKnelly, William Von...Jefferson City
McLean, Royal C.....Kirkwood
McLeod, John.....Kansas City
McLoon, Mary A.....St. Louis
McMahon, Alphonse.....St. Louis
McMahon, Bernard J.....St. Louis
McMillan, Thomas E.....Kansas City
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McNamee, William Francis....St. Louis
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McNearney, Joseph.....St. Louis
McNew, William T.....Carthage
McPheeters, James W.....Poplar Bluff
McPherson, Owen P.....Kansas City
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McReynolds, U. Rial.....Knox City
McShane, Quentin W.....St. Louis
McSwiney, John G.....St. Louis
McVay, James R.....Kansas City
Maas, Hermann.....St. Louis
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MacDonald, John W.....St. Louis
Macdonald, William C.....St. Louis
Macdonnell, C. R.....Marshfield
MacInnis, Florence E.....Kansas City
Mack, Mary L.....Joplin
Mackey, John F., Jr.....St. Louis
Macko, Joseph R.....St. Louis
Maclean, John A.....Ventura, Calif.
Macnish, James M.....St. Louis
Macon, William L., Jr.....St. Louis
Maddox, John D.....Joplin
Maddux, William P.....Springfield
Magee, Charles D.....St. Louis
Magee, E. H.....St. Joseph
Magidson, Joseph .....St. Louis
Magness, Guy N.....University City
Mairs, Edgar J.....Trenton
Maizus, Saul Hyman.....St. Louis
Major, Hermon S.....Kansas City
Malles, Albert C.....St. Louis
Mallette, Cyrus.....Crocker
Malley, John A.....Quincy, Ill.
Maltby, Burton.....Liberty
Manion, Peter J.....St. Louis
Manning, David F.....Address Unknown
Mansbacher, Kurt.....St. Louis
Mansur, Edward E.....Jefferson City
Manting, George.....St. Louis
Mantz, Harry E.....St. Louis
Mantz, Herbert L.....Kansas City
Maples, F. H.....Marshall
Marbury, Benj. E...New Brunswick, N.J.
Marcus, Morris D.....University City
Margulis, Abraham A.....St. Louis
Markel, Arthur D.....Poplar Bluff
Marks, Mark M.....Kansas City
Marmor, William A.....St. Louis
Marshall, A. H.....Charleston
Marshall, Cameron F.....Kansas City
Marshall, W. J.....Springfield
Marston, Warren G.....St. Louis
Martin, Albert J.....East Prairie
Martin, Aretus D.....Sikeston
Martin, Bruce C.....Battle Creek, Mich.
Martin, Charles E.....St. Louis
Martin, Charles P.....St. Louis
Martin, F. A.....Columbia
Martin, Forrest Logan.....Nevada
Martin, James Hardy.....Ironton
Martin, Maynard W.....St. Louis
Martin, Raymond T...San Francisco, Cal.
Martin, Robert E.....Senath
Martin, Thomas M.....St. Louis
Martin, Wilfred E.....Odessa
Marty, L. A.....Lincoln
Mason, Roy E.....St. Louis
Massie, Edward.....St. Louis
Mastin, E. Vernon.....St. Louis
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Mathias, Edward Lynch....Kansas City
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Maughs, Sydney B.....St. Louis
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Maxey, Hugh W.....Jefferson City
Maxwell, Richard W.....St. Louis
May, Benjamin F.....St. Louis
Mayer, Leo L.....St. Louis
Mays, Frank G.....Washington
Mays, Joseph W.....St. Joseph
Mead, Samuel T.....Slater
Meador, James R.....Clayton
Medler, Francis J.....St. Louis
Mehan, George T.....St. Louis
Meinberg, William H., Jr.....St. Louis
Meiners, Edwin P.....St. Louis
Meinhardt, Victor J.....St. Louis
Meisenbach, A. Edward.....St. Louis
Melgaard, S. Ross.....Fairview, Utah
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Merz, Jean J.....St. Louis
Metz, Chas. O.....St. Louis
Meyer, Claude B.....Springfield
Meyer, Curtis A.....St. Louis
Meyer, Harry H.....St. Louis
Meyer, Herman M.....St. Louis
Meyer, Oscar D.....St. Louis
Meyer, Theodore R.....Clayton
Meyerhardt, Milton H.....St. Louis
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Meyn, Werner P.....Altenburg
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Michael, Vernon E.....St. Louis
Michaelree, John F.....St. Louis
Middleman, Isadore C.....St. Louis
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Mier, Thomas M.....St. Louis
Milder, Benjamin.....St. Louis
Miller, Alfred F.....Kirksville
Miller, Charles Waugh.....St. Louis
Miller, Clint L.....Lees Summit
Miller, Clyde S.....Waynesville
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Miller, Eugene A.....St. Joseph
Miller, Gerald L.....Kansas City
Miller, H. Edward.....St. Louis
Miller, Herbert S.....Sikeston
Miller, Howard S.....Macon
Miller, Hugh.....Kansas City
Miller, Oliver Jerome.....Perryville
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Miller, Wade Hampton.....Kansas City
Miller, Walter P.....Kansas City
Milligan, Roy H.....St. Louis
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Miltenberger, Val E.....Kirksville
Minton, Robert S.....St. Joseph
Minton, William H.....St. Joseph
Missey, Wilburn C., Jr.....St. Louis
Mistachkin, Norman L.....St. Louis
Mitchell, Ernest.....Joplin
Mitchell, John E.....Sedalia
Mitchell, Robert H...Kansas City, Kans.
Mitchell, Samuel E.....Malden
Moeller, Carl E.....St. Louis
Moennighoff, Fritz J.....Monett
Molholm, Hans B.....St. Louis
Monahan, Elmer P.....Kansas City
Monroe, Alfred E.....Sedalia
Montani, Charles.....St. Louis
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Montgomery, James Gordon.Kansas City
Montgomery, John S.....Milan
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Morest, F. Stanley.....Kansas City
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Morroway, James H.....St. Joseph
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Mountjoy, Grace S.....St. Louis
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Mudd, J. Gerald.....Wichita, Kansas
Mudd, James L.....St. Louis
Mueller, Charles B....Address Unknown
Mueller, Clarence E.....St. Louis
Mueller, Joseph A.....St. Louis
Mueller, Morris A.....Ladue
Mueller, Ralph Edward....Kansas City
Mueller, Robert.....St. Louis
Mueller, Robert J.....St. Louis
Mueller, W. K.....St. Louis
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Mullen, Park C.....Portageville
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Mullinax, Orr.....Jefferson City
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Munsch, Girard A.....St. Louis
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Murphy, Frank E.....Chicago, Ill.
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Murphy, George J.....St. Louis
Murphy, James P.....St. Louis
Murphy, John C.....St. Louis
Murphy, John P.....St. Louis
Murphy, John Patrick.....St. Louis
Murphy, John Patrick, Jr.....St. Louis
Murphy, Joseph G.....Palestine, Texas
Murphy, Paul.....Koch
Murphy, Robert J.....Kansas City
Murray, John Watts.....Sedalia
Murray, Lotis V.....Pleasant Hill
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Musick, James D.....Springfield
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Myers, Benjamin Lee.....Kansas City
Myers, Daniel W.....Detroit, Mich.
Myers, E. Lee.....St. Louis
Myers, George T.....Macks Creek
Myers, John L.....Kansas City
Myers, John Simeon.....Kansas City
Myers, Ralph R.....Address Unknown
Myers, Robert M.....Kansas City
Myers, Roy E.....Joplin
Myers, Wilson A.....Kansas City

—N—

Nakada, James Robert.....St. Louis
Napper, Marvin L.....Springfield
Nash, W. Hampton.....St. Louis
Neal, M. Pinson.....Columbia
Neff, Frank C.....Kansas City
Neff, Robert L.....Joplin
Neils, Julius K.....Portland, Oregon
Neilson, Arthur W.....St. Louis
Neilson, Charles H.....St. Louis
Neis, Harry B.....Harrisonville
Nelson, Charles S.....Kansas City
Nelson, James M.....Address Unknown
Nelson, William.....St. Louis
Nemec, Stanley S.....St. Louis
Nemours, Paul R.....St. Louis
Nester, Charles A.....St. Louis
Nester, Gerard A.....St. Louis
Neubauer, Darwin W.....St. Louis
Neubeiser, Ben L.....St. Charles
Neudorff, Louis G.....St. Joseph
Neuhoff, Fritz.....St. Louis
Neun, W. F.....St. Louis
Neunlist, Percy C.....Old Monroe
Newkirk, Richard C.....Joplin
Newlon, John S.....Nevada
Newman, George W.....Cassville
Newman, Harold G.....St. Louis
Newman, Mary J. N.....Cassville
Newton, Henry O.....La Plata
Nichols, Charles B.....Auxvasse
Nichols, Frank J.....Farmington
Nicholson, C. M.....St. Petersburg, Fla.
Nickell, L. O.....Moberly
Nicks, Harry G.....St. Louis
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Nicolai, Charles H.....St. Louis
Niederwimer, John.....St. Louis
Nienstedt, Elam J.....Sikeston
Nifong, Frank G.....Columbia
Nigro, D. M.....Kansas City
Nigro, E. Robert.....Kansas City
Nigro, Joseph Albert.....Kansas City
Nisbet, Eliga Bassett.....Odessa
Nix, Winston K.....Marshall
Nolan, Charles J.....St. Louis
Nolan, James F.....St. Louis
Noller, Henry W.....St. Louis
Norberg, George B.....Kansas City
Norman, Robert M.....Ava
North, William R.....Webster Groves
Northup, Glenn R.....St. Louis
Norton, Harry B.....Hannibal
Norton, William H.....St. Louis
Nulton, Ida May.....Lancaster
Nunn, Pat Morris..Kansas City, Kansas
Nussbaum, Paul B.....Cape Girardeau
Nussbaum, Robert A.....St. Louis
Nye, Robert S.....St. Louis

—O—

Obermeyer, Charles G.....St. Louis
O'Brien, Edward C.....St. Louis
O'Brien, Harry Francis.....Mexico
O'Brien, James A.....Indianapolis, Ind.
O'Brien, Leo Aloysius.....Kansas City
O'Brien, Robert M.....St. Louis
Obrock, Louis C.....St. Louis
Ockerblad, Nelse F.....Kansas City
O'Connell, John.....Overland
O'Connell, P. J.....Kansas City
O'Dell, Timothy T.....Nashville, Tenn.
O'Donoghue, James.....St. Joseph
O'Dowd, James A.....St. Louis
Oehler, William F.....Cape Girardeau
Ogilvie, John H.....Kansas City
Oglevie, Rial R.....Kansas City
O'Keefe, C. D.....St. Louis
Olmsted, William H.....St. Louis
O'Malley, Eugene J.....St. Louis
O'Neil, James H.....Kansas City
O'Neill, John B.....St. Louis
Oppenheimer, Henry E.....St. Louis
O'Reilly, Archer.....St. Louis
O'Reilly, Daniel E.....St. Louis
Orenstein, Joseph M.....St. Louis
Orgel, M. Norman.....St. Louis
Ormsbee, James L.....Springfield
Osborne, Charles D.....Sedalia
Osgood, George M.....Kansas City
Ossman, Julian A.....Jefferson City
O'Sullivan, George A.....St. Louis
Ott, Harold J.....Maplewood
Outland, John H.....Kansas City
Overholser, Milton David.....Columbia
Owen, William C.....St. Louis
Owens, Bert O.....St. Louis
Owens, Graham Joseph.....Kansas City
Owens, Guy E.....Kansas City
Owens, Hugh H.....Kansas City
Owens, Michael J.....Kansas City
Owens, Patrick H.....Kansas City
Ozias, Charles R.....Kansas City

—P—

Paddock, Richard.....Clayton
Pakula, Sidney F.....Kansas City
Pallett, Harold A.....Kansas City
Paquin, Albert J., Jr.....Bisbee, Ariz.
Pareira, Morton D.....St. Louis
Park, George M.....Eureka
Park, William I., Jr.....St. Louis
Parker, Elmer L.....Kansas City
Parker, George J.....St. Louis
Parker, Harry F.....Warrensburg
Parker, Hubert M.....Kansas City
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Parsons, Charles R.....Sweet Springs
Parsons, Eugene O.....Kansas City
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Passman, Harold.....Kansas City
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Patrick, Philip L.....Marceline
Patterson, Henry H.....Braymer
Patterson, William R.....Warrensburg
Patton, Fred W.....Mt. Vernon, Ill.
Patton, John F.....St. Louis
Patton, Leslie E.....St. Louis
Paul, John B.....Kansas City
Paul, Thomas M.....St. Joseph
Paule, Charles E.....St. Louis
Pawol, S. E.....St. Louis
Payne, Richard J.....St. Louis
Pearse, Roy W., Jr.....Nevada
Pearson, Donnell M.....Louisiana
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Peck, Chester R., Jr.....St. Louis
Peckham, John W.....Madison, Wis.
Peden, Joseph C.....St. Louis
Peeler, James O.....St. Louis
Peelor, Edwin C.....Clinton
Peete, Don Carlos.....Kansas City
Pelz, Mort D.....St. Louis
Pendleton, George F.....Kansas City
Penn, Robert M.....Silex
Penney, David L.....St. Louis
Pernoud, Flavius G.....St. Louis
Pernoud, Flavius G., Jr.....St. Louis
Pernoud, Michael F.....Springfield
Perry, David C.....Mound City
Perry, John M.....Princeton
Perry, Ralph.....Kansas City
Persons, Robert C.....Maryville
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Peters, Melvin L.....Cameron
Petersen, Fenton J.....St. Louis
Petersen, H. E.....St. Joseph
Petry, Ezra L.....Kansas City
Pfeifer, Oliver C.....St. Louis
Pfuetze, Edwin L.....Kansas City
Phelan, Emma.....St. Louis
Phelps, Charles Ray.....Kansas City
Phillips, Hanford.....St. Louis
Phipps, George W.....Caruthersville
Pickard, M. W.....Tucson, Ariz.
Pickard, Nicholas S.....Kansas City
Pickens, E. Allen.....Springfield
Pickens, Edgar E.....Kansas City
Pickett, Clarence P.....Princeton
Pickett, F. J.....St. Louis
Pickrell, Claude D.....St. Louis
Piekarski, Anthony A.....St. Louis
Pieper, Henry G.....St. Louis
Pinion, John R.....Caruthersville
Pinkston, Omar W.....Kansas City
Pipkin, F. Garrett.....Kansas City
Pipkin, Walter D.....Monroe City
Pittam, J. Thomas.....Kansas City
Pittam, Radford F.....Kanas City
Pitts, Eugene, III.....Altodena, Calif.
Pitzman, Marsh.....St. Louis
Plag, Albert F.....St. Louis
Platt, Paul C.....Kansas City
Platz, John H.....Carrollton
Ploch, Bernard.....St. Louis
Ploehn, Emma.....St. Louis
Plumlee, William C.....Springfield
Plummer, Grover C.....Buffalo
Plumpe, W. Tupper.....St. Louis
Poe, John S.....New York, N. Y.
Polk, George M.....Independence
Pollock, Ellis L.....St. Louis
Pollock, Leo Howard.....Kansas City
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Poor, Carl W.....Diamond
Poorman, Bert A.....Kansas City
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Popejoy, H. R.....California
Popp, Edward M.....Marston
Porter, Louis.....Kansas City
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Portuondo, Bonaventura C.....St. Louis
Post, Cyril A.....Poplar Bluff
Post, Lawrence T.....St. Louis
Post, M. Hayward, Jr.....St. Louis
Post, Winfred L.....Joplin
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Pote, Thomas B.....St. Louis
Potter, Allen B.....St. Louis
Potter, Lee G.....Kansas City
Potter, Reese.....Webster Groves
Potter, Thompson E.....St. Joseph
Powell, Carl A.....St. Louis

Powell, Earl A.....St. Louis
Powell, Rudolph V.....St. Louis
Powers, Everett.....Carthage
Powers, John M.....Kansas City
Powers, Pierce W.....St. Louis
Pranger, Sylvester H.....St. Louis
Prather, Roy William..Excelsior Springs
Prentiss, Harry S.....Kansas City
Presnell, Charles C.....Charleston
Presnell, Cleitus A.....St. Louis
Presnell, George R.....Kennett
Press, Maurice J.....St. Louis
Preston, Albert, Jr.....Topeka, Kansas
Price, Robert P.....Fulton
Price, William Phillip.....Kansas City
Prichard, John A.....Overland
Printz, Joseph H.....Kansas City
Printz, Otto Jack.....Kansas City
Pritchett, Paul L.....Webb City
Probstein, Jacob G.....St. Louis
Proctor, Carter A.....Sullivan
Proetz, Arthur W.....St. Louis
Proud, G. O'Neil.....Overland
Pruett, Burchard S.....St. Louis
Pruett, Daniel S.....St. Louis
Pruett, Hubert S.....St. Louis
Pryor, Harry B.....Ashland
Puckett, Charles L.....St. Louis
Puckett, Cordelia.....St. Louis
Pulliam, Madison J.....St. Louis
Purcell, Harry K.....St. Louis
Putnam, John A.....Carthage
Pyne, Herbert S.....St. Louis
Pyrtle, James R.....Centerville

—Q—

Quarles, E. Bryan.....St. Louis
Quinn, Abram T.....St. Louis
Quirin, Warren S.....St. Louis
Quistgard, Paul Cameron...Kansas City

—R—

Rader, Ada B.....Martin City
Raemdonck, Alphonse J.....St. Louis
Ragan, Romulus C.....Kansas City
Ragsdale, George M.....Paris
Rainwater, E. H.....Springfield
Ramos, Raoul L.....St. Louis
Randall, Leslie.....Licking
Rannie, Paul R.....Independence
Rassieur, Louis.....St. Louis
Rauschelbach, Oscar R.....Rhineland
Rawlins, Kelly.....Holden
Ray, Richard H.....St. Louis
Ready, James H.....St. Louis
Redmond, William.....St. Joseph
Reed, Carl H.....Carrollton
Reed, Henry L.....Licking
Reed, R. W.....Richland
Reese, A. Victor.....Webster Groves
Reeves, George W.....Fulton
Reh, Edward P.....St. Louis
Reich, Harry A.....St. Louis
Reich, Oliver F.....Kimmswick
Reiches, Aaron J.....St. Louis
Reichman, John J.....Hannibal
Reid, Charles T.....Joplin
Reid, James A.....Marshall
Reilly, Leo J.....St. Louis
Reilly, Pierce J.....St. Louis
Reim, Hugo.....St. Louis
Reinhard, Edward H.....Webster Groves
Reis, Carl J.....St. Louis
Reitz, Carl H.....Kansas City
Remley, George C.....Kansas City
Rendleman, George F.....St. Louis
Repetto, Albert M.....St. Louis
Reser, Thomas S.....Colecamp
Reuter, Louis A.....St. Louis
Reutter, Garfield A.....Rockport
Reynolds, Fred.....St. Louis
Reynolds, Garland A.....Cape Girardeau
Reynolds, James R.....Neosho
Reynolds, Stephen D.....Plattsburg
Rice, Earl R.....St. Louis
Rice, Grover C.....Kansas City
Richardson, Lyman K..Kansas City, Kan.
Richman, Elmer.....St. Louis
Richtarsic, Stephen R.....St. Louis
Ridge, Frank I.....Kansas City
Ries, Douglas A.....Richmond Heights
Rigdon, Thomas J.....Kennett
Rigney, Levi M.....Springfield
Riley, Ralph D.....St. Louis
Riley, William H.....St. Louis
Riller, Lowell E.....Independence
Ringen, August H.....Sweet Springs
Ringo, Henry J.....St. Louis
Rinkel, Herbert J.....Kansas City
Riordan, Lawrence M.....St. Louis
Rising, Jesse D.....Kansas City
Ritchie, Frances R.....St. Louis
Ritter, Raymond A.....Cape Girardeau
Robb, Thomas P.....Philomath, Oregon
Robbins, Martin V.....Peculiar
Roberson, John H.....Hayti
Roberts, Harold K.....St. Louis
Roberts, Harold M.....Kansas City
Roberts, John R.....Brentwood
Roberts, Sam E.....Kansas City
Robertson, E. Norris.....St. Louis
Robertson, Frank G.....St. Louis
Robertson, J. Archie.....Kansas City
Robertson, LeRoy L.....St. Louis
Robertson, Robert C.....Dayton, Ohio
Robichaux, Eugene B...Excelsior Springs
Robichaux, Eugene C...Excelsior Springs
Robinson, Bradbury J.....Farmington
Robinson, David Beach.....Kansas City
Robinson, David Weaver....Kansas City
Robinson, Edith C.....St. Louis
Robinson, Edward E.....Adrian
Robinson, Ernest Kip.....Kansas City
Robinson, George G.....Humansville
Robinson, G. Wilse.....Kansas City
Robinson, G. Wilse, Jr.....Kansas City
Robinson, Harold A.....Detroit, Mich.
Robinson, John A.....Edgerton
Robinson, Ralph D.....Denver, Colo.
Roblee, Melvin A.....St. Louis
Robnett, D. A.....Columbia
Roche, Maurice B.....St. Louis
Rodeman, John M.....Sedalia
Roe, Allen N.....St. Louis
Roebber, Harry M.....Bonne Terre
Rogers, C. H.....St. Louis
Rogers, John Asa.....University City
Rohlfing, Arthur H.....St. Louis
Rohlfing, Edwin H.....St. Louis
Rohlfing, Walter H.....St. Louis
Rolens, Louis E.....Granby
Rollins, H. D.....Winona
Rolwing, E. Charles.....Charleston
Romendick, Samuel S.....Koch
Roper, Stanley D.....Ozark
Rose, Charles W.....Kansas City
Rose, Dalton Keats.....St. Louis
Rose, Frank H.....Albany
Rosen, Charles S.....St. Louis
Rosenbaum, Harry D.....St. Louis
Rosenberger, Charles F...University City
Rosenfeld, Henry.....St. Louis
Rosenfeld, Herman.....St. Louis
Rosenthal, Arthur D.....Barnard
Rosenthal, Frances E.....Joplin
Rosenthal, Irwin I.....St. Joseph
Rosenthal, Leonard G.....St. Louis
Rosenwald, Leon.....Kansas City
Ross, Pren J.....Grant City
Rossen, Julius A.....St. Louis
Rost, William B.....St. Joseph
Roth, John J.....St. Louis
Rothman, David.....St. Louis
Rothman, Paul M.....St. Louis
Rotter, Julius C.....St. Louis
Roufa, Joseph F.....St. Louis
Roundy, Collis I.....St. Joseph
Rouse, David M.....LaBelle
Rowe, Alfred R.....Poplar Bluff
Rowland, Willard D...New Orleans, La.
Rowlette, Avery P.....Moberly
Roy, Gustave A.....Long Beach, Calif.
Royse, Roy P.....Sullivan
Royston, Grandison D.....St. Louis
Rubnitz, Leon H.....Madison, Wis.
Ruddell, George W.....St. Louis
Ruff, Troy E.....Jackson
Ruhling, Rudolph.....St. Louis
Rund, Emmet H.....St Louis
Runde, F. William.....St. Louis
Rupe, Wayne A.....St. Louis
Rusk, Earl McD.....New Bloomfield
Rusk, Howard A.....Washington, D. C.
Russell, Alexander L.....St. Louis
Russell, James M.....Monett
Russell, John J.....Deepwater
Russell, Richard Lee.....Jefferson City
Russi, Simon.....Fayetteville, N. C.
Rutledge, John F.....Crystal City
Rutledge, Paul E.....Kirkwood
Rutledge, William J.....Campbell
Ryan, John B.....Hermann
Ryan, John Harold.....St. Joseph
Ryan, John J.....Clayton
Ryan, Linus M.....St. Louis
Ryan, Robert A.....Mountain Grove
Ryan, R. A., Jr.....St. Louis
Ryburn, John P.....St. Louis
Ryland, Caius T.....Lexington

—S—

Sachs, Ernest.....St. Louis
Saferstein, T. Harry.....St. Joseph
St. Clair, Robert L.....Kansas City
St. John, Dewey.....St. Louis
St. John, Thomas C.....St. Louis
Saladino, Anthony.....Kansas City
Sale, Llewellyn.....St. Louis
Sale, Llewellyn, Jr.....St. Louis
Salisbury, William J.....Vigus
Salter, John C.....St. Louis
Salyer, Charles E.....St. Joseph
Sample, George A.....Chaffee
Samuelson, Edward A.....Kansas City
Sanders, Clarence C.....Kansas City
Sanders, Clifford E.....Richmond Heights
Sanders, George E.....Kansas City
Sanders, Robert D.....St. Louis
Sanders, Theodore E.....St. Louis
Sandperl, Harry.....St. Louis
Sanford, Joseph Hoy.....St. Louis
Sante, L. R.....St. Louis
Sargent, Alden P.....Sikeston
Sargent, Emanuel N.....Lamone, Iowa
Sarno, S. M.....Morehouse
Sartin, John M.....Springfield
Saslow, George.....St. Louis
Sassin, Edmond F.....St. Louis
Satterfield, Val B.....St. Louis
Sauer, F. J. Dean.....St. Louis
Sauer, William E.....St. Louis
Saunders, Everett L.....Independence
Sausville, Albert J.....St. Louis
Saxton, John A., Jr.....St. Louis
Saylor, Edward.....Phillipsburg
Scarpellino, Louis A.....Kansas City
Schaaf, Katherine M.....St. Louis
Schaefer, Charles L.....Kansas City
Schaefer, Edward H.....Sedalia
Schaerrer, Hans.....Kansas City
Schaerrer, William C.....Kansas City
Schafer, Joseph C.....St. Louis
Scharles, Frederick H.....Kansas City
Schattyn, John Martin.....St. Louis
Schauffler, Robert M.....Kansas City
Schechter, Samuel E.....St. Louis
Scheele, M. H.....University City
Scheff, Harold.....St. Louis
Scherer, Phil H.....St. Louis
Scherman, Victor E.....St. Louis
Scherrer, Fred W., Jr.....St. Louis
Schill, Austin E.....Ancan, Canal Zone
Schisler, Edwin J.....St. Louis
Schlenker, Lawrence.....St. Louis
Schlossstein, Adolph G.....St. Louis
Schluer, Elmer P.....St. Louis
Schlueter, Newell W.....St. Louis
Schlueter, Robert E. .....St. Louis
Schmidt, Charles A.....Gerald
Schmidt, E. M.....St. Louis
Schmidt, Hebert H.....Marthasville
Schmidt, William C.....Augusta
Schmidtke, Edwin C.....Columbia
Schmiemeier, Herman A.....St. Louis
Schmiemeier, Roy H.....St. Louis
Schmitz, Edgar F.....St. Louis
Schneider, Louis W.....St. Louis
Schneider, N. A.....St. Louis
Schneider, Sam.....St. Louis
Schneider, Vincent A.....St. Charles
Schnoebelen, Paul C.....St. Louis
Schoeberl, C. B.....Alton, Ill.
Schoen, Ernst R.....Jackson
Schoetker, George H.....St. Louis
Schofield, Linn J.....Warrensburg
Scholz, Roy P.....St. Louis
Schooley, R. C.....Odessa
Schopp, Alvin C.....Columbia
Schorer, Edwin H.....Kansas City
Schrader, Paul J.....Address Unknown
Schrepel, Herbert O.....St. Louis
Schuchat, W. Louis.....St. Louis
Schuck, Philip.....St. Louis
Schuhmacher, N. R.....Liberty
Schulein, Vernon E.....St. Louis
Schulte, G. A.....Joplin
Schulz, A. P. E.....St. Charles
Schulz, Gustav B.....Cape Girardeau
Schumacher, Cyril W.....Brentwood
Schumacher, James C.....St. Louis
Schurter, Ray J.....St. Louis
Schutz, Carl Bryant.....Kansas City
Schutz, Richard B.....Kansas City
Schwab, Sidney I.....St. Louis
Schwartz, Alfred S.....St. Louis
Schwartz, Eugene J.....Springfield
Schwartz, Frederick O.....St. Louis
Schwartz, Henry G.....St. Louis
Schwartzman, Bernard.....St. Louis
Schwartzmann, John R.....St. Louis
Sciortino, John S.....St. Louis
Scopelite, Joseph A.....St. Louis
Scorse, Sidney W.....Joplin
Scott, Clive D.....Louisiana
Scott, Elijah A.....St. James

Scott, Elwin P.....St. Louis
Scott, Henry F.....Manchester
Scott, J. U.....Harrisonville
Scott, Wendell G.....St. Louis
Seabaugh, Dayton I. L.....Jackson
Seabaugh D. Rusby.....Jackson
Seabaugh, Oda L.....Cape Girardeau
Seabaugh, Ottis D.....Webster Groves
Seddon, John W.....St. Louis
Seelig, Major G.....St. Louis
Seely, Clark W.....Kansas City
Seib, George A.....St. Louis
Sellars, C. J.....Mt. Moriah
Senn, Emmett J.....Herculaneum
Senne, Herbert C.....St. Joseph
Senor, Samuel D.....St. Joseph
Senor, Samuel Earl.....St. Joseph
Senseney, Eugene T.....St. Louis
Senturia, Ben D.....Chicago, Ill.
Senturia, Ben H.....St. Louis
Senturia, Hyman R.....St. Louis
Sertl, John D.....St. Louis
Settle, Charles T.....Rock Port
Settle, Emmett B.....Rock Port
Sevin, Omar R.....St. Louis
Sewell, Minor F.....Kansas City
Sewell, W. S.....Springfield
Sewing, Arthur H.....St. Louis
Sexauer, Arthur E.....Ste. Genevieve
Sexton, Daniel L.....St. Louis
Sexton Elmer E.....St. Louis
Shackelford, Horace H.....St. Louis
Shahan, William E.....St. Louis
Shaner, John F.....St. Louis
Shanklin, Benjamin.....St. Louis
Shapiro, Lazare Melvin.....Kansas City
Sharp, William L.....St. Louis
Shaver, Nellie A.....St. Louis
Shaw, William J.....Fayette
Shea, Robert E.....St. Louis
Sheedy, John A.....St. Louis
Sheets, John S.....St. Louis
Sheets, Martin E.....St. Louis
Sheetz, Bertha E.....Trenton
Shelby, Mitchell H.....Cape Girardeau
Sheldon, John G.....Kansas City
Sheldon, John, Jr.....Kansas City
Shelton, Edward Olney.....Eldon
Shelton, Harold J.....St. Louis
Shephard, H. C.....Flat River
Sheridan, Edmund R.....St. Louis
Sherman, C. A.....Kansas City
Sherwin, Charles F.....St. Louis
Sherwin, Charles S.....St. Louis
Sherwood, Loraine.....Kansas City
Shirey, Arnold G.....Hayti
Shofstall, Charles K.....Kansas City
Shores, Earl M.....St. Joseph
Shouse, Edwin.....Lawson
Shrader, E. Lee.....St. Louis
Shreffler, Algie R.....St. Louis
Shuey, Herbert H.....Kansas City
Shull, George Donald....Jefferson City
Shumate, D. L.....Kansas City
Shutt, Cleveland H.....St. Louis
Shy, James C.....St. Louis
Shy, Milton P.....Sedalia
Shypper, Moses J.....Kansas City
Siceluff, Joseph G.....Springfield
Siebert, Walter J.....St. Louis
Sievers, Edward F.....St. Louis
Signorelli, A. J.....St. Louis
Sigoloff, Emanuel....Los Angeles, Calif.
Silsby, Don H.....Springfield
Silsby, Don James.....Springfield
Silsby, Harry D.....Springfield
Silverberg, Charles.....Koch
Simmons, B. B.....St. Joseph
Simmons, Leroy.....Hot Springs, Ark.
Simmons, Sterling P.....Marshall
Simon, Jerome I.....St. Louis
Simon, Selig.....St. Louis
Simpson, Eber.....St. Louis
Simpson, Emerson L.....Springfield
Simpson, Guy L.....Clayton
Simpson, Lloyd.....Columbia
Simpson, Morris B.....Kansas City
Simpson, Robert H.....Columbia
Simpson, Samuel E.....Stanberry
Sims, John L.....Joplin
Sinclair, Alexander B.....Kansas City
Singleton, J. Milton.....Kansas City
Sinner, Bernard L.....St. Louis
Skeffington, Mary Jane.....St. Louis
Skilling, David M., Jr.....St. Louis
Skinner, Edward H.....Kansas City
Skinner, John Osman.....Kansas City
Skinner, John Spalding.....Clayton
Skinner, John T.....Kansas City
Skoog, Andrew L.....Kansas City
Slaughter, Shelby C.....Fredericktown
Slusher, Ernest W.....Kansas City
Small, Walter L.....Kansas City
Smit, Herbert M.....St. Louis
Smit, William M.....St. Louis
Smith, Andrew J.....St. Joseph
Smith, Arthur B.....Kansas City
Smith, Benjamin F., Jr.....St. Louis
Smith, C. Souter.....Springfield
Smith, Carl C.....Moberly
Smith, Clifton.....St. Joseph
Smith, Clinton K.....Kansas City
Smith, Dudley.....St. Louis
Smith, Edward S.....Kirksville
Smith, Frank J.....St. Louis
Smith, Herbert P.....St. Louis
Smith, Hugh R.....St. Louis
Smith, J. Earl.....St. Louis
Smith, Jacob D.....Shelbina
Smith, James D.....Kansas City
Smith, James E.....Rolla
Smith, James M.....St. Louis
Smith, James O.....Clinton
Smith, John R.....St. Louis
Smith, Louis J.....New Madrid
Smith, Milton.....St. Louis
Smith, Oda Oscar.....St. Louis
Smith, Reuben M.....St. Louis
Smith, Robert M.....St. Louis
Smith, Rollin H.....West Plains
Smith, Seth P.....St. Louis
Smith, Stephen D.....Columbia
Smith, Ulysses S.....Hannibal
Smith, Wallis.....Springfield
Smith, W. Alexander....Webster Groves
Smith, William J.....Hannibal
Smith, William R.....Carthage
Smolik, Edmund A.....St. Louis
Snavely, Edmund C.....Sedalia
Snider, Samuel H.....Kansas City
Snyder, Edward N.....St. Louis
Soderberg, N. B.....Cleveland, Ohio
Sommer, Conrad S.....St. Louis
Sooy, Francis A.....New York, N. Y.
Soper, Horace W.....St. Louis
Sophian, Abraham.....Kansas City
Soule, Samuel D.....St. Louis
Spafford, Allen Leo.....Kansas City
Spain, Kate C.....St. Louis
Spalding, Wilber B.....Plattsburg
Sparhawk, William J...Cape Girardeau
Spaulding, William.....Poplar Bluff
Spears, Charles A.....Billings
Speidel, F. W.....Senath
Speidel, Roy E.....Senath
Spell, Frank R.....Liberal
Spelman, A. E.....Smithville
Spence, Elbert L.....Kennett
Spencer, Floyd H.....St. Joseph
Spencer, LeGrand Dee.....Kanab, Utah
Spencer, Selden.....St. Louis
Spinzig, Edgar W.....Kirkwood
Spitz, Milton A.....Brentwood
Spivy, Raymond M.....St. Louis
Spoeneman, Marlin C.....St. Louis
Spoeneman, Walter H.....St. Louis
Stacy, Emmett W.....Princeton
Stacy, Winton T.....Address Unknown
Staehle, Melvin E.....St. Louis
Staggs, William A.....Kansas City
Stahl, Fred A.....Springfield
Stahl, Phineas D.....St. Louis
Staley, Harry R.....Kansas City
Stamey, James T.....St. Joseph
Stanbro, William.....St. Louis
Stanze, Frank J.....St. Louis
Stapp, Roth Van Allen.....Kansas City
Starkloff, Gene B.....Clayton
Starkloff, Max.....St. Louis
Starks, John C.....Gower
Statland, Harry.....Kansas City
Staton, R. Hamilton.....Carrollton
Stauffacher, C. Gordon.....Sedalia
Stauffer, Harry B.....Jefferson City
Stecker, George.....St. Louis
Steele, Harol.....St. Louis
Stein, Arthur W.....St. Louis
Stein, Harry J.....St. Louis
Stein, Leon A.....St. Louis
Steinberg, Franz U.....St. Louis
Steiner, Albert S.....St. Louis
Steiner, Alexander J.....St. Louis
Stephan, August P.....Jefferson City
Stephens, LeRoy J.....St. Louis
Stephens, William A.....St. Louis
Stephenson, K. L.....Kansas City
Sterling, C. E.....St. Louis
Sterling, John A.....Maplewood
Stern, Franz.....Clayton
Stevens, Lawrence H.....St. Louis
Stevens, Robert W.....St. Louis
Stewart, Floyd.....St. Louis
Stewart, Francis H.....St. Louis
Stewart, J. W.....St. Louis
Stewart, James.....Jefferson City
Stewart, R. Wendell.....Springfield
Stewart, William James.....Columbia
Stickler, Ralph O.....Kirksville
Stindel, Charles Ernst.....St. Louis
Stine, Dan G.....Columbia
Stines, Thomas I., Jr.....East St. Louis
Stocking, Lyman C.....St. Louis
Stockwell, A. Lloyd.....Kansas City
Stoelzle, Joseph D.....Kirkwood
Stokes, James Bell.....Fulton
Stolar, Jacob.....St. Louis
Stone, Charles A.....St. Louis
Stone, Edna M.....St. Louis
Stone, Murray C.....Springfield
Stone, William E.....Boonville
Stormont, Riley M.....Webb City
Storrs, Henry John.....St. Louis
Stranz, Roman J.....St. Louis
Strauss, Arthur E.....St. Louis
Streetor, Roderick D.....Moberly
Strehlman, Benjamin G.....Union
Stricker, Emil A.....St. James
Striegel, B. F.....St. Louis
Stroud, C. Malone.....St. Louis
Strub, Giles J.....St. Louis
Stryker, Garold V.....St. Louis
Stuart, Daniel D.....Brunswick
Stubbs, James B.....Clayton
Stude, William Carl.....St. Louis
Stuebner, Roland W.....Clayton
Stufflebam, Andrew J.....Humansville
Stump, David J.....Fairfield, Ohio
Sturhahn, Ferdinand O...Webster Groves
Stutsman, Albert C.....St. Louis
Sugarbaker, Everett P.....Columbia
Suggett, Finis C.....Columbia
Sullivan, Clement J.....University City
Sullivan, B. Hazard.....Miami
Sullivan, William J.....Philadelphia, Pa.
Sultzman, Francis E.....Hannibal
Sum, Othmar J.....Barnhart
Summers, Caldwell B.....Kansas City
Summers, Jacob H.....Lebanon
Summers, Joseph S.....Jefferson City
Summers, Joseph S., Jr...St. Paul, Minn.
Sunderman, Raymond C.....St. Louis
Susanka, William Dee.....St. Louis
Sutter, Richard A.....St. Louis
Sutton, Charles E.....Bonne Terre
Sutton, Richard L., Jr.....Kansas City
Sutton, Richard L.....McAllen, Texas
Sweet, Herbert C.....Affton
Sweetman, Homer A...Guerneville, Calif.
Swekosky, Frank J.....St. Louis
Swisher, Robert C....Address Unknown
Switzer, D. Clyde.....Kansas City
Szewzyk, Thaddeus..... St. Louis

—T—

Tadlock, Baxter W.....St. Joseph
Tainter, Frank J.....St. Louis
Talbott, Hudson.....St. Louis
Talty, Matthew H.....Address Unknown
Tapper, Stephen M.....St. Louis
Tarrasch, E. L.....Springfield
Tarson, Solomon S.....Kansas City
Tarver, Quinton.....Kennett
Tashma, Sigmund.....St. Louis
Tasker, Charles B.....Kansas City
Tate, Lloyd L.....St. Louis
Tate, Prentiss S.....Fulton
Taussig, Barrett L.....St. Louis
Taussig, Joseph B.....St. Louis
Taylor, Edward L.....Steele
Taylor, Herbert I.....Jefferson City
Taylor, Leo T.....Neosho
Taylor, Leon A.....Jefferson City
Taylor, Van W.....Bonne Terre
Taylor, William E.....Springfield
Teachenor, Frank R.....Kansas City
Teall, Raymond E.....Kansas City
Teiber, Frederick W.....St. Louis
Teneglia, Eutimio D.....St. Louis
Tess, Melvin.....St. Louis
Tesson, James Albert.....Kansas City
Thale, Thomas.....St. Louis
Thatcher, J. O. M.....Ferguson
Thiele, George H.....Kansas City
Thieme, Harry L.....St. Louis
Thierry, Charles W.....St. Louis
Thiessen, Edward Herman..Kansas City
Thimsen, Udell S.....St. Louis
Thomas, A. W.....Springfield
Thomas, Charles S.....St. Louis
Thomason, Henry E.....Kansas City
Thompson, Arthur M.....St. Louis
Thompson, Emma A. B.....Breckenridge
Thompson, F. G.....St. Joseph
Thompson, F. G., Jr.....St. Joseph
Thompson, J. William, Jr.....St. Louis

Thompson, Lawrence D.....St. Louis
Thompson, Nathan P.....St. Louis
Thompson, Ralph L.....St. Louis
Thompson, Robert V.....Jamesport
Thompson, William G.....Holden
Thomson, David A.....St. Louis
Thorn, Druery R.....Kansas City
Thornburgh, Albert H.....West Plains
Threadgill, Jesse M.....Forsyth
Throgmorton, Howard B.....Sikeston
Thurlow, Ralph M.....Address Unknown
Thurman, Joseph L.....Potosi
Thurston, Don L.....St. Louis
Thym, Henry P.....St. Louis
Thym, Herman H.....Kansas City
Tibe, Matilda L.....St. Louis
Tichenor, Robert W.....Sappington
Tiernon, Luke B.....St. Louis
Tillman, Walter W., Jr.....Bolivar
Timerman, Arthur R.....St. Joseph
Tincher, Joseph C.....Boonville
Titsworth, Guy.....Sedalia
Titterington, Paul F.....St. Louis
Tjoflat, Oliver Eugene.....St. Louis
Tobias, Norman.....St. Louis
Todd, D. Clay.....St. Louis
Todd, Thomas B.....Nevada
Tomlinson, W. Loren.....Fornfelt
Tonelli, George L.....St. Louis
Tooker, Charles W.....St. Louis
Toothaker, Wayne M.....St. Joseph
Torin, Bernice Albert.....St. Louis
Touhill, Neal J.....Dexter
Towers, Orville W.....St. Charles
Townsend, James A.....Eureka
Townsend, Vincent F.....Maplewood
Townsend, William H.....Maplewood
Townshend, Grafton D.....Kansas City
Tracy, Herbert A.....Belton
Tracy, James C.....Mound City
Trader, Charles B.....Sedalia
Traubitz, Arnold.....Leadwood
Treadway, W. W.....Silex
Treharne, Frank E.....Independence
Treiman, Robert C.....St. Louis
Tremain, E. E.....Maplewood
Tremain, Irl G.....St. Louis
Trigg, Joseph F.....St. Louis
Trimble, William K.....Kansas City
Triplett, Jacob S.....Harrisonville
Tripodi, Anthony M.....Tacoma, Wash.
Tripodi, Donald W...Hot Springs, S. D.
Trippe, Harrison C.....Kansas City
Trowbridge, B. C.....Kansas City
Trowbridge, Ellsworth H.....Kansas City
Trowbridge, Ellsworth H., Jr. Kansas City
Tuholske, Lister.....St. Louis
Tureen, Louis Leon.....St. Louis
Turner, Glenn O.....Springfield
Turner, Rush.....St. Louis
Tuthill, Herbert.....Kansas City
Tuthill, Sanford W.....St. Louis
Tuttle, Floyd Wilkins.....Blue Springs
Tversky, Edgar L.....St. Louis
Twedell, Donald Louis.....St. Louis
Twyman, Elmer D...San Marino, Calif.
Twyman, Richard A.....Kansas City
Tygett, G. J.....Cape Girardeau
Tyzzer, Robert N.....San Diego, Calif.

—U—

Uhlemeyer, Henry A.....St. Louis
Uhlemeyer, Henry A., Jr.....St. Louis
Uhlmann, Robert.....Kansas City
Underwood, Dick H.....Kansas City
Underwood, John B.....St. James
Underwood, Johnson.....Parkville
Underwood, Johnson, Jr. No. Kansas City
Underwood, Millard K.....Rolla
Underwood, Ross H.....Kansas City
Unger, Harold.....Kansas City
Unterberg, Hillel.....St. Louis
Upshaw, Paul O.....Springfield
Upsher, Albert E.....Kansas City
Urban, Edgar Dale.....Sikeston
Urban, Emanuel T.....St. Louis

—V—

Vail, A. Denton.....Springfield
Valentine, Herbert S.....Kansas City
VanBiber, James T.....Kansas City
Van Cleve, John D...Corpus Christi, Tex.
Vandel, Dwight T.....Kansas City
Vandiver, Virgil D.....Chillicothe
Vandover, John T.....St. Louis
VanNoy, Levi T.....Norwood
Vanorden, Herbert F.....Kansas City
Van Ravenswaay, Arie C. H., Boonville
Van Urk, Jules B.....Carthage
Varian, Thelma S.....Columbia
Vaughan, John R.....St. Louis
Vaughan, J. Russell....New York, N. Y.
Veatch, Charles A.....Marshall
Veeder, Borden S.....St. Louis
Verda, Dominic J.....St. Louis
Vezeau, Stephen.....St. Louis
Viley, Leland P.....Kansas City
Vinyard, Robert.....Springfield
Virant, John A.....Clayton
Virden, C. Edgar.....Kansas City
Vitale, Nicholas S.....St. Louis
Vitt, Alvin E.....St. Louis
Vitt, Edwin F.....St. Louis
Vitt, Rudolph S.....St. Louis
Vivona, Stefano....San Francisco, Calif.
Vizgird, J. J.....St. Louis
Voegelin, Samuel.....Kansas City
Vogel, Eugene A.....St. Louis
Vogler, Alfred T.....St. Louis
Vogt, William H., Jr.....St. Louis
Vohs, Carl F.....St. Louis
Vollmar, Clarence J.....Webster Groves
Von Kaenel, Joseph E.....St. Louis
Votaw, Robert E.....Clayton
Vournas, Christopher G.....St. Louis

—W—

Wachenfeld, Carl H.....Webster Groves
Wachowiak, Marion.....Palmyra
Wachter, Harry E.....St. Louis
Wade, Frederick E.....Kansas City
Wade, James H.....Ozark
Wade, James Paul.....St. Louis
Wade, Leo J.....St. Louis
Wadlow, Ernst E.....St. Joseph
Wagenbach, William F.....St. Louis
Waihoja, William J.....Lebanon
Wakefield, Franklin, Jr.....Kansas City
Wakeman, Jasper Newton...Springfield
Walker, George S.....Clinton
Walker, Grant D.....Eldon
Walker, James Charles.....Kansas City
Walker, John W.....Kansas City
Walker, L. L.....St. Louis
Walker, Paul W.....Joplin
Walker, William E.....LaMonte
Wall, Albert.....St. Louis
Wall, Arthur H.....Sierra Madre, Calif.
Wall, Harvey M.....Windsor
Wallace, Edgar S.....Old Mines
Wallace, Edwin S.....Lexington
Wallace, Frank Barnett.....Kansas City
Wallace, Leo F.....Maryville

MILWAUKEE SANITARIUM

WAUWATOSA, WISCONSIN

FOR NERVOUS DISORDERS

(Chicago Office—1117 Marshall Field Annex
Wednesday, 1-3 P. M.)

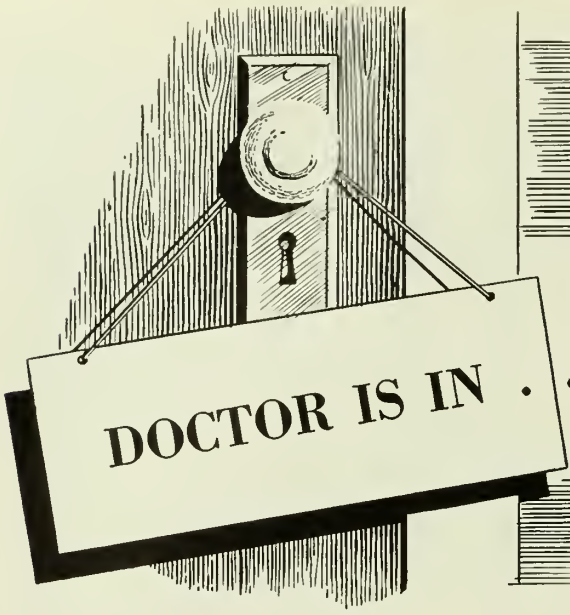
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▶ THE CUTE LITTLE BABY he helped deliver back in 1925 is now suing him for $5,000 because of an instrument scar.

▶ His state's 2-year statute of limitations is no help, for the 2 years didn't start 'til the "baby" was 21.

▶ Yet this doctor would lose neither time, money, sleep nor reputation if protected by our policy and service (as are thousands of other doctors, for about the cost of a good pair of shoes).

▶ For the world's largest legal staff of malpractice experts already would be cutting through mountains of conflicting court decisions and anticipating schemes that might otherwise "prove" his guilt.

▶ All cost of defense against disgruntled patients, even through the court of last appeal (including fee of attorney whom *you* help choose), is paid by us. If not acquitted, we also pay the judgment, as provided in our policy.

THE
MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

Professional Protection EXCLUSIVELY . . . *since 1899*

ST. LOUIS Office: A. W. Breckenkamp, Manager, 623 Missouri Theatre Building, Telephone Newstead 0404

Wallis, William M., Jr.....Maryville
Walsh, W. Timothy.....Springfield
Walter, Archie L.....Sedalia
Walters, William H.....St. Louis
Walthall, Damon O.....Kansas City
Walther, Roy A.....Overland
Walther, Roy A., Jr.....Overland
Walton, Franklin E.....St. Louis
Walton, Josiah H.....St. Louis
Warner, Robert G.....St. Louis
Warson, Samuel R.....St. Louis
Washburn, J. Loren.....Versailles
Wasserman, Helman C.....St. Louis
Wasson, Wesley B.....Nixa
Waters, E. B.....Kirkwood
Watkins, George L.....Farmington
Watkins, George L., Jr.....Farmington
Watson, B. Frank.....Kansas City
Watson, Ethel.....Independence
Wattenberg, Carl A.....St. Louis
Watts, Robert B.....Wellington
Waugh, Clifton M.....Tarkio
Wayland, Thomas A.....St. Louis
Weaver, John S.....Kansas City
Webb, J. Warner, Jr...North Kansas City
Webb, Jonathan W.....Excelsior Springs
Webb, Leslie R.....Springfield
Webb, Lewis M.....St. Louis
Webb, Marion A.....St. Louis
Webb, Paul Kingsley.....St. Louis
Weber, Eugene P.....St. Louis
Weber, Sol.....St. Louis
Weber, William K.....Normandy
Webster, Joseph G.....Kansas City
Webster, Roger W.....Carthage
Wedig, John H., Jr.....Alton, Ill.
Wegner, Carl R.....St. Louis
Weiler, Thomas J.....Glendale
Weinel, Francis G.....St. Louis
Weiner, David O.....Brooklyn, N. Y.
Weinsberg, Charles H.....St. Louis
Weinsberg, William C.....St. Louis
Weintraub, Solomon A.....St. Louis
Weir, Don C.....St. Louis
Weir, Edward F.....Meadville
Weir, Royal A.....St. Louis
Weis, Matthew W.....St. Louis
Weisman, Sol.....St. Louis
Weiss, Richard S.....St. Louis
Weiss, William.....St. Louis
Weiterer, Herman L.....St. Louis
Welborn, William S.....St. Louis
Welch, Hooper W.....St. Louis
Welker, Joseph E.....Kansas City
Well, J. W.....Palmyra
Welsh, Laurence C.....Hines, Ill.
Weltmer, Roger P.....Kansas City
Wennerman, Sam F.....St. Louis
Wentzel, Louis Robert.....St. Louis
Wenzel, Peter S.....St. Louis
Wepprich, Michael S.....Washington
Werner, August A.....St. Louis
Werner, Charles H.....St. Joseph
Werner, William A.....St. Louis
Werth, Duncan Scott.....Kirkwood
Wescoat, William H.....Cape Girardeau
Wessling, Alfred L.....Bethany
West, William D.....Mendon
West, William M.....Monett
Westerman, Henry C.....St. Louis
Westlake, Samuel B.....St. Louis
Weston, Ursa C.....Galt
Westphaelinger, Henry F.....St. Louis
Westrup, Arthur W.....Webster Groves
Westrup, Ellsworth A...Webster Groves
Weyerich, Leon F.....St. Louis
Wheeler, John H.....Kansas City
Wheeler, William M.....Sedalia
Whitaker, G. W.....East Prairie
Whitaker, Topsy T. H.....East Prairie
White, Charles A.....St. Louis
White, Charles H.....Kansas City
White, Edwin C.....Kansas City
White, George A.....Kansas City
White, Homer E.....Naylor
White, Orville O.....St. Louis
White, Park J.....St. Louis
White, R. Ned.....Springfield
White, Stoughton F.....New York, N. Y.
White, T. Wistar.....St. Louis
White, William H.....St. Louis
White, W. H., Jr.....St. Louis
Whitehead, Frank F.....Neosho
Whitener, Paul Rowland.....Overland
Whitman, Doyle C.....Kansas City
Whitsell, John C.....St. Joseph
Whitsell, Ora Earl.....St. Joseph
Whitten, Marion F.....Carthage
Wiatt, William S.....St. Louis
Wiegand, Herbert C.....St. Louis
Wien, Irving A.....Kansas City, Kansas
Wiener, Meyer.....Coronado, Calif.
Wiese, Harry W.....St. Louis
Wilbur, Clifford H.....Polo
Wilbur, Herbert L.....Joplin
Wilcox, Claude V.....St. Louis
Wilcoxen, Wm. B...Ft. Schnelling, Minn.
Wild, Aloysius A.....St. Louis
Wilhelmi, Otto J.....St. Louis
Wilhelmus, Gilbert M.....St. Louis
Wilkinson, Everett A.....Kansas City
Will, Leo Archibald.....St. Louis
Willhelmy, Ellis W.....Kansas City
Williams, Bill H.....Joplin
Williams, Charles E.....Malden
Williams, Delon A.....Kansas City
Williams, John Wood, Jr...Jefferson City
Williams, John W.....Springfield
Williams, Ray D.....St. Louis
Williams, Reuben H.....Moberly
Williams, R. S.....Mexico
Williams, Robert A.....Kansas City
Williams, Robert F.....Springfield
Williams, Vincent T.....Kansas City
Williamson, O. E.....St. Louis
Williamson, Walter E.....St. Louis
Williamson, William H.....Mokane
Williamson, William P.....Kansas City
Willis, John Buren.....Mayview
Willits, Lyle G.....Kansas City
Willoughby, Jean B.....Sayre, Pa.
Wills, Will J.....Springfield
Wilson, Charles F.....Ft. Bragg, N. C.
Wilson, Clifford C.....Kansas City
Wilson, Fernando I.....Kansas City
Wilson, Fred K.....Winston
Wilson, Hester J.....Kansas City
Wilson, Keith S.....St. Louis
Wilson, Kenneth O.....Kirkwood
Wilson, L. C.....Kennett
Wilson, Robert P. C.....Platte City
Wilson, Virgil R.....Rosendale
Wilucki, Leo E.....St. Louis
Wilucki, Melvin R.....St. Louis
Wimber, Thomas C.....St. Louis
Wimp, J. J.....Kirksville
Winkelman, Esther B.....Kansas City
Winkler, John J.....Kansas City
Winn, George W.....Boonville
Winn, James W.....Higbee
Winningham, William H.....Trenton
Winterer, Roland A.....Affton
Wippo, Edgar W.....St. Louis
Wisser, John J.....St. Joseph
Wissner, Seth.....St. Louis
Withers, Orval R.....Kansas City
Wittwer, Hugh J.....St. Louis
Woeger, Jacob G.....Whiteside
Wolf, Jack W.....Kansas City
Wolfe, Sharkey.....Address Unknown
Wolff, Charles.....St. Louis
Woltzen, Samuel W.....Urich
Womack, James R.....Houston
Womack, Nathan A.....St. Louis
Wood, Adolph M.....Shelbina
Wood, Bennett R.....Normandy
Wood, George F.....Fulton
Wood, George H.....Carthage
Wood, Laurence E.....Kansas City
Wood, V. V.....St. Louis
Wood, Walter S.....Trimble
Wood, William G.....St. Louis
Wood, W. Logan.....Bolckow
Woodfin, Lyle L.....Rafael, Calif.
Woodruff, Frederick E.....St. Louis
Woods, Harold V.....Independence
Wooldridge, A. Graham.....Butler
Woolsey, Robert D.....St. Louis
Wortley, Cabray.....St. Joseph
Wotawa, William J.....St. Louis
Wray, Rolla B.....Nevada
Wright, Gordon D.....St. Joseph
Wright, R. Paul.....Kansas City
Wrinkle, Thomas D.....Halfway
Wuestenfeld, H. E.....Jerseyville, Ill.
Wulff, George J. L., Jr...University City
Wurzer, Arnold Henry.....St. Louis
Wyatt, Lois C.....Kirkwood

—Y—

Yancey, Daniel L.....Springfield
Yanow, Mitchell..San Francisco, Calif.
Yarbraugh, Charles L.....Cairo, Ill.
Yater, Joseph M.....Nevada
Yazel, Herman E.....Kansas City
Yeargain, John P.....Irondale
York, William B.....Sarcoxie
Yoskit, Harry.....Festus
Yost, Walter B.....University City
Young, Fred C.....Kansas City, Kansas
Young, Jesse W.....Kansas City, Kansas
Young, John H.....Crane
Young, John S.....St. Louis
Young, Leo P.....St. Louis
Young, Lillian V.....Clayton
Young, Robert H.....Moberly
Younger, Jesse.....Long Island, N. Y.
Youngman, George A.....St. Louis
Yount, William E.....Cape Girardeau

—Z—

Zahorsky, John.....St. Louis
Zahorsky, Theodore S.....St. Louis
Zeinert, Oliver B.....St. Louis
Zeitler, Walter A.....Jennings
Zeitler, William T.....St. Louis
Zellermayer, Jacob.....Kansas City
Zentay, Paul J.....St. Louis
Ziegelmeyer, John S.....St. Louis
Ziegler, Allen M.....Kansas City
Ziegler, Newell R.....Columbia
Ziegler, William H.....Boonville
Zillgitt, George H.....St. Louis
Zillman, August W.....Keytesville
Zimmermann, C. A. W...Cape Girardeau
Zingale, Frank G.....St. Louis
Zink, Oscar C.....St. Louis
Zinschlag, Edward N.....St. Louis
Zoglin, Nathan M.....Kansas City
Zuber, Harold V.....Kansas City
Zwart, Claude H.....St. Louis

ROSTER OF MEMBERS BY COUNTY SOCIETY

ANDREW COUNTY MEDICAL SOCIETY

Holliday, Morgan Lee.....Fillmore
Hoshor, John C.....Savannah
Kelley, Gilbert B.....Savannah
Long, Forrest C.....Savannah
Wilson, Virgil R.....Rosendale
Wood, W. Logan.....Bolckow

AUDRAIN COUNTY MEDICAL SOCIETY

Alford, Redman Lee.....Vandalia
Bland, Warren W.....Vandalia
Coil, Paul E.....Mexico
Dwyer, Thomas L.....Vandalia
Garcia, Charles L.....Mexico
Griffin, Fred.....Mexico
Harrison, John Frank.....Mexico
Jolley, J. Frank.....Mexico
Kallenbach, G. P.....Mexico
McCall, William K.....Laddonia
Moore, Josiah G.....Chino, Calif.
O'Brien, Harry Francis.....Mexico
Williams, Robert Sidney.....Mexico

BARRY-LAWRENCE-STONE COUNTY MEDICAL SOCIETY

Brasher, Charles A.....Mount Vernon
Burney, Wallace S.....Miller
Child, Scott P.....Kansas City
Coffman, Esther E. L.....St. Louis
Copette, Alex P.....Crane
Cottrell, Wilson P.....Reeds Spring
Cowan, R. D.....Aurora
Donley, Robert R.....Monett
Ferguson, Lewis H.....Monett
Fujikawa, Y. F.....Mount Vernon
Glover, Kenneth.....Mount Vernon
Hargrove, Fred T.....Monett
Hellweg, Charles E.....Mount Vernon
Herron, W. Floyd.....Aurora
Holmes, Lemuel Isaac.....Miller
Holmes, Mansell B.....Tuscaloosa, Ala.
Holmes, Prince Albert.....Mount Vernon
Kerr, Frank Taylor.....Monett
Kerr, Homer L.....Crane
Mellies, Chester J.....Sikeston

Moennighoff, Fritz J. ....Monett
Newman, George W. ....Cassville
Newman, Mary Jane N. ....Cassville
Pickett, F. J. ....St. Louis
Robertson, Robert C. ....Dayton, Ohio
Russell, James M. ....Monett
Threadgill, Jesse M. ....Forsyth
West, William M. ....Monett
Young, John H. ....Crane

BARTON COUNTY MEDICAL SOCIETY

Atkins, James A. ....Lamar
Bickel, James T. ....Lamar
Bickel, Vern T. ....Lamar
Duckett, Claude E. ....Lamar
Guldner, Edmond ....Lamar
Knapp, Rudolph ....Golden City
Locker, George E. ....Iantha
Spell, Frank R. ....Liberal

BATES COUNTY MEDICAL SOCIETY

Allen, Claude J. ....Rich Hill
Allen, William H., Jr. ....Hume
Cooper, John M. ....Butler
Hansen, Arthur L. ....Appleton City
LaHue, L. D. ....Butler
Lusk, Charles A. ....Butler
Lusk, Charles A., Jr. ....Butler
Luter, Carter W. ....Butler
Robinson, Edward E. ....Adrian
Wooldridge, A. Graham ....Butler

BENTON COUNTY MEDICAL SOCIETY

Logan, James A. ....Warsaw
Reser, Thomas S. ....Cole Camp

BOONE COUNTY MEDICAL SOCIETY

Ackerman, Lauren V. ....Columbia
Allen, Horace E. ....Columbia
Allen, Joseph E. ....Columbia
Baker, James M. ....Columbia
Baskett, Edgar D. ....Columbia
Battersby, Richard S. ....Columbia
Belden, William E. ....Columbia
Bradford, Oscar F. ....Columbia
Bricker, Eugene M. ....St. Louis
Bruner, Claude R. ....Columbia
Chiasson, E. Chaille ....Columbia
Conley, Dudley S. ....Columbia
Cooper, Maurice Edmund ....Columbia
Crouch, Richard D. ....Columbia
Delaney, Joseph H. ....Address Unknown
del Regato, J. A. ....Columbia
Dexheimer, Frank E. ....Columbia
Dietrich, Karl David ....Columbia
Dysart, William P. ....Columbia
Folkers, L. M. ....Columbia
Gorelick, David F. ....Columbia
Griffith, Harry M. ....Columbia
Highsmith, L. S. ....Philadelphia, Pa.
Jordon, James E. ....Maplewood
Kampschmidt, A. W. ....Columbia
Lachance, Leopold ....Centralia
Leech, Charles A. ....Columbia
LeMone, David V. ....Columbia
McComas, Arthur R. ....Sturgeon
Martin, F. A. ....Columbia
Motley, Hurley L. ....New York
Neal, M. Pinson ....Columbia
Nifong, Frank G. ....Columbia
Overholser, Milton D. ....Columbia
Pryor, Harry B. ....Ashland
Robnett, Dudley A. ....Columbia
Schmidtke, Edwin C. ....Columbia
Schopp, Alvin C. ....Columbia
Simpson, Lloyd ....Columbia
Simpson, Robert H. ....Columbia
Smith, Stephen D. ....Columbia
Stewart, William J. ....Columbia
Stine, Dan G. ....Columbia
Sugarbaker, Everett P. ....Columbia
Suggett, Finis C. ....Columbia
Varian, Thelma S. ....Columbia
Ziegler, Newell R. ....Columbia

BUCHANAN COUNTY MEDICAL SOCIETY

Allaman, John M. ....St. Joseph
Bansbach, Joseph J. ....St. Joseph
Bauman, Louis C. ....St. Joseph
Beck, Leroi ....St. Joseph
Bell, John M. ....St. Joseph
Berney, Francis J. ....St. Joseph
Bertram, Charles W. ....St. Joseph
Bloomer, Gaylord T. ....St. Joseph
Bloomer, O. T. ....St. Joseph
Boteler, George M. ....St. Joseph
Brumm, Harold J. ....St. Joseph
Bunch, James R. ....Nevada
Burgher, Arthur E. ....St. Joseph
Burkwall, Herman F. ..Address Unknown
Byrne, John I. ....St. Joseph
Carle, Horace W. ....St. Joseph
Carle, Horace W., Jr. ....St. Joseph
Carmichael, Francis A. ....St. Joseph
Chiarottino, Joseph F. ....St. Joseph
Conrad, Harry S. ....St. Joseph
Conrad, Robert W. ....St. Joseph
Craig, Owen W. D. ....St. Joseph
Day, Maxwell ....St. Joseph
DeLamater, Hasbrouck ....St. Joseph
Disque, Andrew A. ....St. Joseph
DuMont, Clement C. ....St. Joseph
Dunsmore, J. M. ....St. Joseph
Elam, William T. ....St. Joseph
Eliscu, Fred ....St. Joseph
Elliott, John R. ....St. Joseph
Fassett, Charles W. ....Burlingame, Calif.
Ferguson, Luther J. ....St. Joseph
Fisher, Joseph L. ....St. Joseph
Fordyce, Claude P. ....St. Joseph
Forgrave, John R. ....St. Joseph
Forgrave, Leon Paul ....St. Joseph
Forman, George W. ....Address Unknown
Fulkerson, Perry P. ....St. Joseph
Fuson, Levi H. ....St. Joseph
Goetze, William F. ....St. Joseph
Grant, Claude S. ....St. Joseph
Greenberg, Charles ....St. Joseph
Grimes, M. E. ....St. Joseph
Hansen, Walter J. ....St. Joseph
Hartigan, Frank X. ....St. Joseph
Howden, Thomas L. ....St. Joseph
Hughes, Judson M. ....St. Joseph
Hull, Walter S. ....St. Joseph
Hunt, William J. ....St. Joseph
Johnson, Delbert P. ....Address Unknown
Kearby, Howard Denton ....St. Joseph
Kiefer, R. W. ....St. Joseph
Knepper, P. A. ....St. Joseph
Lau, Gustav A. ....St. Joseph
McDonald, Wilbur P. ....St. Joseph
McGlothlan, Arthur B. ....St. Joseph
Magee, E. H. ....St. Joseph
Mays, Joseph W. ....St. Joseph
Meluney, S. E. ....St. Joseph
Miller, Eugene A. ....St. Joseph
Minton, Robert S. ....St. Joseph
Minton, William H. ....St. Joseph
Moore, Walter Roger ....St. Joseph
Morroway, James H. ....St. Joseph
Morse, Marvin ....St. Joseph
Muench, Albert H. ....St. Joseph
Mullinax, Orr ....Jefferson City
Mundy, Homer F. ....St. Joseph
Neudorff, Louis G. ....St. Joseph
O'Donoghue, James ....St. Joseph
Paul, Thomas M. ....St. Joseph
Petersen, H. E. ....St. Joseph
Potter, Thompson E. ....St. Joseph
Redmond, William ....St. Joseph
Rosenthal, Irwin I. ....St. Joseph
Rost, William B. ....St. Joseph
Roundy, Collis I. ....St. Joseph
Ryan, John Harold ....St. Joseph
Saferstein, T. Harry ....St. Joseph
Senne, Herbert C. ....St. Joseph
Senor, Samuel D. ....St. Joseph
Senor, Samuel Earl ....St. Joseph
Shores, Earl M. ....St. Joseph
Simmons, Benjamin B. ....St. Joseph
Smith, Andrew J. ....St. Joseph
Smith, Clifton ....St. Joseph
Spencer, Floyd H. ....St. Joseph
Stacy, Winton T. ....Address Unknown
Stamey, James T. ....St. Joseph
Tadlock, Baxter W. ....St. Joseph
Talty, Matthew H. ....St. Joseph
Thompson, Fred G. ....St. Joseph
Thompson, F. G., Jr. ....St. Joseph
Timerman, Arthur R. ....St. Joseph
Toothaker, Wayne M. ....St. Joseph
Wadlow, Ernst E. ....St. Joseph
Werner, Charles H. ....St. Joseph
Whitsell, John C. ....St. Joseph
Whitsell, Ora Earl ....St. Joseph
Wisser, John J. ....St. Joseph
Wortley, Cabray ....St. Joseph
Wright, Gordon D. ....St. Joseph

BUTLER COUNTY MEDICAL SOCIETY

Biggs, Fred J., Jr. ....Poplar Bluff
Brandon, Walter L. ....Poplar Bluff
Brookreson, Alton F. ....Poplar Bluff
Clay, Hampson S. ....Poplar Bluff
Currie, Kenneth P. ....Poplar Bluff
Fonda, James W. ....Poplar Bluff
Goforth, Clifford ....Doniphan
Harwell, James Lee ....Poplar Bluff
Harwell, J. Lester ....Poplar Bluff
Henrickson, Hardin M. ....Poplar Bluff
Hoxie, D. A. ....Portsmouth, Va.
Kneibert, Fred L. ....Poplar Bluff
McPheeters, James W. ....Poplar Bluff
Markel, Arthur D. ....Poplar Bluff
Post, Cyril A. ....Poplar Bluff
Rowe, Alfred R. ....Poplar Bluff
Spaulding, William ....Poplar Bluff
White, Homer E. ....Naylor

CALDWELL-LIVINGSTON COUNTY MEDICAL SOCIETY

Barney, Reuben ....Chillicothe
Booth, Herbert R. ....Hamilton
Carpenter, George W. ....Chillicothe
Collier, Alfred ....Chillicothe
Conrad, Joseph ....Chillicothe
Daley, Lyle M. ....Hamilton
Dowell, Donald M. ....Chillicothe
Dowell, George S. ....Braymer
Dowell, Horace S. ....Chillicothe
Grace, Clarence M. ....Chillicothe
Patterson, Henry H. ....Braymer
Thompson, Emma A. B. ....Breckenridge
Vandiver, Virgil D. ....Chillicothe
Wilbur, Clifford H. ....Polo

CALLAWAY COUNTY MEDICAL SOCIETY

Blasko, John J. ....Nashville, Tenn.
Brown, John J. ....Fulton
Cremer, William J. ....Fulton
Crews, Robert N. ....Fulton
Durst, Henry ....Fulton
Fagley, Raymond C. ....W. Orange, N. J.
Hall, Robert G. ....Nevada
McCall, Greene D. ....Fulton
McCubbin, J. Burleigh ....Fulton
Nichols, Charles B. ....Auxvasse
Pope, Nathan K. ....Springfield
Rusk, Earl McD. ....New Bloomfield
Tate, Prentiss S. ....Fulton
Williamson, William H. ....Mokane
Wood, George F. ....Fulton

CAMDEN COUNTY MEDICAL SOCIETY

Claiborne, Edward G. ....Camdenton
Myers, George T. ....Macks Creek

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

Ashley, Hugh Vincent ....Cape Girardeau
Barnes, Asa ....San Francisco, Calif.
Barnes, Seth S. ....Cape Girardeau
Berry, John W. ....Cape Girardeau
Blaylock, Richard D. ....Cape Girardeau
Campbell, Edward D. ....Cape Girardeau
Cochran, J. H. ....Cape Girardeau
Crites, Edward ....Sedgewickville
Cunningham, Harvey L. ..Cape Girardeau
Davault, Webster W. ....Allenville
Drace, James J. ....Cape Girardeau
Elrod, Dennis B. ....Cape Girardeau
Estes, Albert M. ....Jackson
Ford, Walter W. ....Gordonville
Fuerth, Arthur L. ....Cape Girardeau

Hall, Frank W. ..... Cape Girardeau
Herbert, Charles T. ..... Cape Girardeau
Juden, Alexander G. ..... Cape Girardeau
Nussbaum, Paul B. ..... Cape Girardeau
Oehler, William F. ..... Cape Girardeau
Reynolds, Garland A. ..... Cape Girardeau
Ritter, Raymond A. ..... Cape Girardeau
Ruff, Troy E. ..... Jackson
Schoen, Ernst R. ..... Jackson
Schulz Gustav B. ..... Cape Girardeau
Seabaugh, D. I. L. ..... Jackson
Seabaugh, D. Rusby ..... Jackson
Seabaugh, Oda L. ..... Cape Girardeau
Shelby, M. H. ..... Cape Girardeau
Sparhawk, William J. ..... Cape Girardeau
Tygett, Glenn J. ..... Cape Girardeau
Wescoat, William H. ..... Cape Girardeau
Yount, William E. ..... Cape Girardeau
Zimmermann, C. A. W. ..... Cape Girardeau

CARROLL COUNTY MEDICAL SOCIETY

Atwood, William G. ..... Carrollton
Bales, Eugene L. ..... Carrollton
Platz, John H. ..... Carrollton
Staton, R. Hamilton ..... Carrollton

CARTER-SHANNON COUNTY MEDICAL SOCIETY

Buckthorpe, Thelma C. ..... Van Buren
Cotton, Tolman W. ..... Van Buren
Davis, Robert I. ..... Birch Tree
Eudy, William T. ..... Eminence
Hyde, Frank ..... Eminence
Rollins, H. D. ..... Winona

CASS COUNTY MEDICAL SOCIETY

Albers, Edward A. ..... Pleasant Hill
Barger, O. B. ..... Harrisonville
Beckman, William ..... Strasburg
Crawford, Harry S. ..... Long Beach, Calif.
Ellis, Frank B. ..... Garden City
Griffith, Edgar M. ..... Harrisonville
Hartwell, Basil O. ..... Drexel
Long, David S. ..... Harrisonville
Murray, Lotis V. ..... Pleasant Hill
Neis, Harry B. ..... Harrisonville
Robbins, Martin V. ..... Peculiar
Scott, James U. ..... Harrisonville
Tracy, Herbert A. ..... Belton
Triplett, Jacob S. ..... Harrisonville

CHARITON-MACON-MONROE-RANDOLPH COUNTY MEDICAL SOCIETY

Barnett, Floyd A. ..... Paris
Billeter, William J. ..... Bynumville
Buck, Ulysses G. ..... Rothville
Bulkley, Clarence H. ..... LaPlata
Cambre, Adrain L. ..... Atlanta
Davis, Paul C. ..... Neosho
Dreyer, Philip V. ..... Huntsville
Eggleston, E. E. ..... Macon
Epperly, R. G. ..... Huntsville
Erni, Harry E. ..... Macon
Fellows, William W. ..... Aspinwall, Pa.
Fleming, Jacob W., Jr. ..... Moberly
Fleming, Thomas S. ..... Moberly
Griffiths, Harry C. ..... Moberly
Gronoway, Terrence P. ..... Macon
Hardy, John W. ..... Sumner
Harms, Florian L. ..... Salisbury
Hawkins, George W. ..... Salisbury
Hawkinson, W. O. ..... Roanoke
Huber, Lasley Earl ..... Moberly
Hyatt, William T. ..... St. Louis
Knowles, Roy F. ..... Rolla
Leusley, Marvin E. ..... Moberly
Lewis, Andrew L. ..... Sumner
Lucas, William B. ..... Mendon
McAdam, James D. ..... Prairie Hill
McCormick, Frank L. ..... Moberly
McMurry, Marvin C. ..... Paris
Miller, D. Herbert ..... Muskogee, Okla.
Miller, Howard S. ..... Macon
Murphy, Joseph G. ..... Palestine, Texas
Newton, Henry O. ..... LaPlata
Nickell, Luther O. ..... Moberly
Price, Robert P. ..... Fulton
Ragsdale, George M. ..... Paris
Rowlette, A. P. ..... Moberly
Smith, Carl C. ..... Moberly
Stokes, James Bell ..... Fulton
Streetor, Roderick D. ..... Moberly
Stuart, Daniel D. ..... Brunswick
West, William D. ..... Mendon
Williams, Reuben H. ..... Moberly
Winn, James W. ..... Higbee
Zillman, August W. ..... Keytesville

CHRISTIAN COUNTY MEDICAL SOCIETY

Farthing, Robert R. ..... Ozark
Roper, Stanley D. ..... Ozark
Spears, Charles A. ..... Billings
Wade, James H. ..... Ozark
Wasson, Wesley B. ..... Nixa

CLAY COUNTY MEDICAL SOCIETY

Ashmore, Buell L. ..... Chillicothe, Ohio
Baird, J. Edward ..... Excelsior Springs
Dawson, Lerton V. ..... Excelsior Springs
Dunham, R. H. ..... North Kansas City
Fowler, I Charles ..... North Kansas City
Goodson, William H. ..... Liberty
Grace, John F. ..... Excelsior Springs
Hardagree, Harvey ..... Bronx, N. Y.
Hendren, Glenn W. ..... Liberty
Hobbs, Earl B. ..... Smithville
Houck, Russell M. ..... Excelsior Springs
Howell, James Albert ..... Muskogee, Okla.
Knox, Earl R. ..... North Kansas City
Langhus, Melvin O. ..... North Kansas City
McCracken, Samuel R. ..... Excelsior Springs
Maltby, Burton ..... Liberty
Musgrave, David E. ..... Hines, Ill.
Pate, O. S. ..... North Kansas City
Porter, Russell C. ..... North Kansas City
Prather, Roy Williams ..... Excelsior Springs
Robichaux, Eugene B. ..... Excelsior Springs
Robichaux, Eugene C. ..... Excelsior Springs
Schuhmacher, N. R. ..... Liberty
Spelman, Archibald E. ..... Smithville
Tripodi, Donald W. ..... Hot Springs, S. D.

CLINTON COUNTY MEDICAL SOCIETY

Dunkeson, Edward B. ..... Lathrop
Kimes, Ira D. ..... Cameron
Longfield, Fred J. ..... Lathrop
Peters, Melvin L. ..... Cameron
Reynolds, Stephen D. ..... Plattsburg
Spalding, Wilber B. ..... Plattsburg
Starks, John C. ..... Gower

COLE COUNTY MEDICAL SOCIETY

Adams, C. Frederick ..... Jefferson City
Aldridge, M. R. ..... Jefferson City
Bohrer, Edward R. ..... Jefferson City
Bruce, James G. ..... Jefferson City
Dorris, Richard P. ..... Jefferson City
Enloe, Lawrence D. ..... Jefferson City
Gillham, Frank W. ..... Jefferson City
Guyot, J. DeVoine ..... Jefferson City
Kanagowa, H. ..... Jefferson City
Kelly, Marshall W. ..... Jefferson City
Klebba, Larry B. ..... Jefferson City
Krause, Irl B. ..... Jefferson City
Leslie, J. T. ..... Jefferson City
Leslie, Walter L. ..... Russelville
McHaney, John W. ..... Jefferson City
McKnelly, William von ..... Jefferson City
Mansur, Edward E. ..... Jefferson City
Maxey, Hugh W. ..... Jefferson City
Ossman, Julian A. ..... Jefferson City
Russell, Richard Lee ..... Jefferson City
Shull, George Donald ..... Jefferson City
Stauffer, Harry B. ..... Jefferson City
Stephan, August P. ..... Jefferson City
Stewart, James ..... Jefferson City
Summers, Joseph S. ..... Jefferson City
Summers, Joseph S., Jr. ..... St. Paul, Minn.
Taylor, Herbert I. ..... Jefferson City
Taylor, Leon A. ..... Jefferson City
Webb, Jonathan W. ..... Excelsior Springs

COOPER COUNTY MEDICAL SOCIETY

Beckett, Theodore C. ..... Boonville
Blankenship, George W. ..... Boonville
Boley, James O. ..... Jennings
Chamberlain, Gilbert L. ..... New Franklin
Diekroeger, M. L. ..... Boonville
Evans, Robert L. ..... Boonville
Meredith, Arnold L. ..... Prairie Home
Morgan, Donald Nye ..... Boonville
Stone, William E. ..... Boonville
Tincher, Joseph C. ..... Boonville
Van Ravenswaav, Arie C. H. ..... Boonville
Winn, George W. ..... Boonville
Ziegler, William H. ..... Boonville

DALLAS-HICKORY-POLK COUNTY MEDICAL SOCIETY

Glasco, Loren A. ..... Urbana
Griffin, M. Evelyn ..... Buffalo
Griffin, Olin A., Jr. ..... Buffalo
Harrell, Henry J. ..... Morrisville
McCraw, Doyle C. ..... Bolivar
Plummer, Grover C. ..... Buffalo
Robinson, George G. ..... Humansville
Stufflebam, Andrew J. ..... Humansville
Tillman, Walter W., Jr. ..... Bolivar
Wrinkle, Thomas D. ..... Halfway

DEKALB COUNTY MEDICAL SOCIETY

Gale, William S. ..... Osborn
Johnson, Glenn D. ..... Maysville

DUNKLIN COUNTY MEDICAL SOCIETY

Bailey, S. M. ..... Malden
Baldwin, Paul ..... Kennett
Beall, Homer ..... Malden
Belsey, Wallace A. ..... Campbell
Bond, Van H. ..... Hornersville
Cofer, James C. ..... Kennett
Cope, Edwin G. ..... Hornersville
Dempsey, D. T. ..... Kennett
Dunmore, George O. ..... Kennett
English, Wallace D. ..... Cardwell
Glasgow, Marvin C. ..... Cardwell
Keim, John Harry ..... Cape Girardeau
Linton, C. S. ..... Kennett
McHaney, H. A. ..... Kennett
Martin, Robert E. ..... Senath
Mitchell, Samuel E. ..... Malden
Presnell, George R. ..... Kennett
Rigdon, Thomas J. ..... Kennett
Rutledge, William J. ..... Campbell
Speidel, Frederick W. ..... Senath
Speidel, Roy E. ..... Senath
Spence, Elbert L. ..... Kennett
Tarver, Quinton ..... Kennett
Van Cleve, John D. ..... Corpus Christi, Tex.
Williams, Charles E. ..... Malden
Wilson, Loys C. ..... Kennett

FRANKLIN COUNTY MEDICAL SOCIETY

Brenner, Paul A. ..... Owensville
Briegleb, Charles F. ..... St. Clair
Denny, Hubert M. ..... Union
Duckworth, William H. ..... St. Clair
Ecker, Decider B. ..... Pacific
Eisenmann, Beniamin P. ..... New Haven
Evermann, H. Walter ..... Warrenton
Goodrich, Charles F. ..... Washington
Hoelscher, Harold F. ..... Warrenton
Johnson, Grover C. ..... Marthasville
Kitchell, William E. ..... St. Clair
Macauley, Bernard J. ..... Gerald

McNay, Albert L. ..... Pacific
Matthews, Gilpin L. ..... Beaufort
Mays, Frank G. ..... Washington
Muench, Ludwig O. ..... Washington
Proctor, Carter A. ..... Sullivan
Royse, Roy P. ..... Sullivan
Ryan, John B. ..... Hermann
Schmidt, Charles A. ..... Gerald
Schmidt, Herbert H. ..... Marthasville
Strehlman, Benjamin G. ..... Union
Wepprich, Michael S. ..... Washington

GREENE COUNTY MEDICAL SOCIETY

Abbott, Clyde B. ..... Springfield
Allder, Alfred E. ..... Springfield
Amos, James R. ..... Springfield
Atherton, Mary Jean ..... Springfield
Barber, John J. ..... Walnut Grove
Beatie, William R. ..... Springfield
Bechtold, Frederick F. ..... Springfield
Boots, Roger H. ..... Springfield
Box, Ernest M. ..... Springfield
Bruton, Tyrrel S. ..... Springfield
Burke, Walter H. ..... Springfield
Busiek, Urban J. ..... Springfield
Callaway, Guy D. ..... Springfield
Camp, George H. ..... Springfield
Cheek, William C. ..... Springfield
Coffelt, Kenneth C. ..... Springfield
Cole, Paul F. ..... Springfield
Conrad, Raymond C. ..... Springfield
Coon, James W. ..... Des Moines, Iowa
Craig, Arthur D. ..... Springfield
Delzell, William A. ..... Springfield
Dewey, James E. ..... Springfield
Duncan, Robert D. ..... Springfield
Elkins, C. Bryant ..... Springfield
Elkins, Ronald F. ..... Springfield
Epps, Curtis ..... Springfield
Evans, Ezra L. ..... Springfield
Evans, Ezra L., Jr. ..... Springfield
Farthing, Fred R. ..... Springfield
Farthing, Gene W. ..... Springfield
Feller, C. E. ..... Springfield
Ferguson, John P., Jr. ..... Springfield
Ferrell, Thomas E., Jr. ..... Springfield
Fitch, C. H. Max ..... Springfield
Focht, Ralph H. ..... Strafford
Freeman, Samuel F. ..... Springfield
Fulbright, James H. ..... Springfield
George, Charles A. ..... Springfield
Gifford, Allen W. ..... Springfield
Glenn, Elmer E. ..... Springfield
Glynn, Robert ..... Springfield
Griot, Arthur J. ..... Springfield
Griot, George A. ..... Springfield
Hall, Durward G. ..... Springfield
Hanan, Ernest B. ..... Springfield
Handley, Walter E. ..... Springfield
Hanss, Armand W. ..... Springfield
Harris, Thomas S. ..... Springfield
H'Doubler, Francis T. ..... Springfield
Heimburger, Leroy F. ..... Springfield
Herman, Allen I. ..... Springfield
Hogeboom, George W. ..... Springfield
Hoover, H. Lee, Jr. ..... Springfield
Horst, Otto C. ..... Springfield
Horton, James D. ..... Springfield
James, Joseph D. ..... Springfield
Johnston, Joseph L. ..... Springfield
Kelly, William ..... Springfield
Klingner, George M. ..... Springfield
Klingner, Thomas O. ..... Springfield
Knabb, Arthur D. ..... Springfield
Knabb, Henry F. ..... Springfield
Knabb, Kenneth E. ..... Springfield
Langston, Walter R. ..... Springfield
LeCompte, Elmo M. ..... Brookline Station
Lemmon, George B. ..... Springfield
Lemmon, G. Bruce, Jr. ..... Springfield
Leslie, James F. ..... Springfield
Love, Joseph W. ..... Springfield
Lowe, Horace A. ..... Springfield
Maddux, William P. ..... Springfield
Maples, Floyd H. ..... Marshall
Marshall, W. J. ..... Springfield
Meyer, Claude B. ..... Springfield
Murphy, Frank E. ..... Chicago
Musick, James D. ..... Springfield
Napper, Marvin L. ..... Springfield
O'Brien, James A. ..... Indianapolis
Ormsbee, James L. ..... Springfield
Pickens, E. Allen ..... Springfield
Plumlee, William C. ..... Springfield
Rainwater, E. H. ..... Springfield
Rigney, Levi M. ..... Springfield
Sartin, John M. ..... Springfield
Schwartz, Eugene J. ..... Springfield
Sewell, Walter S. ..... Springfield
Siceluff, Joseph G. ..... Springfield
Silsby, Don H. ..... Springfield
Silsby, Don James ..... Springfield
Silsby, Harry D. ..... Springfield
Simpson, Emerson L. ..... Springfield
Smith, C. Souter ..... Springfield
Smith, Wallis ..... Springfield
Stahl, Fred A. ..... Springfield
Stewart, R. Wendell ..... Springfield
Stone, Murray ..... Springfield
Tarrasch, E. L. ..... Springfield
Taylor, William E. ..... Springfield
Thomas, A. W. ..... Springfield
Turner, Glenn O. ..... Springfield
Upshaw, Paul O. ..... Springfield
Vail, A. Denton ..... Springfield
Vinyard, Robert ..... Springfield
Wakeman, Jasper N. ..... Springfield
Walsh, William T. ..... Springfield
Webb, Leslie R. ..... Springfield
White, R. Ned ..... Springfield
Williams, John Wood, Jr. ..... Jefferson City
Williams, John W. ..... Springfield
Williams, Robert F. ..... Springfield
Wills, William J. ..... Springfield
Yancey, Daniel L. ..... Springfield

GRUNDY-DAVIESS COUNTY MEDICAL SOCIETY

Ambrose, Elmer C. ..... Trenton
Breid, Jacob ..... Spickard
Cullers, Charles H. ..... Trenton
Duffy, Edgar A. ..... Trenton
Duffy, Oliver F. ..... Trenton
Fuson, William A. ..... Trenton
Gay, Ray J. ..... Kansas City
Kimberlin, Herbert C. ..... Trenton
Lowry, Henry L. ..... Tindall
Mairs, Edgar J. ..... Trenton
Parker, John Z. ..... Pattonsburg
Sheetz, Bertha E. ..... Trenton
Thompson, Robert V. ..... Jamesport
Weston, Ursa C. ..... Galt
Wilson, Fred K. ..... Winston
Winningham, William H. ..... Trenton

HARRISON COUNTY MEDICAL SOCIETY

Brewer, Lake ..... Ridgeway
Broyles, Watkins A. ..... Bethany
Wessling, Alfred L. ..... Bethany

HENRY COUNTY MEDICAL SOCIETY

Baggerly, Walter E. ..... Montrose
Blackmore, Thomas A. ..... Windsor
Douglas, Thomas H., Jr. ..... Osceola
Galbreath, Jesse W. ..... Urich
Hampton, Joseph R. ..... Clinton
Harwood, Samuel R. ..... Sullivan
Hollingsworth, Ray S. ..... Clinton
Hughes, Shelby B. ..... Clinton
Jennings, Robert J. ..... Windsor
Peelor, Edwin C. ..... Clinton
Russell, John J. ..... Deepwater
Smith, James O. ..... Clinton
Walker, George S. ..... Clinton
Wall, Harvey M. ..... Windsor
Walton, Josiah H. ..... St. Louis
Woltzen, Samuel W. ..... Urich

HOLT COUNTY MEDICAL SOCIETY

Chandler, John F. ..... Oregon
Gebhart, Oliver C. ..... Oregon
Hogan, Frank E. ..... Mound City
Kearney, Elmer F. ..... Oregon
Perry, David C. ..... Mound City
Tracy, James C. ..... Mound City

HOWARD COUNTY MEDICAL SOCIETY

Bloom, W. A. ..... Fayette
Gardner, Joseph W. ..... Glasgow
Hurst, Ben B. ..... Marceline
Kitchen, William B. ..... Glasgow
Leech, Maurice P. ..... Fayette
Shaw, William J. ..... Fayette

HOWELL-OREGON-TEXAS-WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

Ames, A. C. ..... Mountain Grove
Anderson, Robert J. ..... Address Unknown
Barnes, Ford A. ..... Thayer
Bohrer, E. Claude ..... West Plains
Callihan, C. F. ..... Willow Springs
Cooper, Claude W. ..... Thayer
Denney, Richard W. ..... Mountain Grove
Doan, Deborah ..... Bakersfield
Edens, Louis M. ..... Cabool
Frame, Homer G. ..... Mountain Grove
Fuson, John Alva ..... Mansfield
Gentry, Marvin Carrol ..... Ava
Harsh, Ralph T. ..... Houston
Hogan, Robert E. ..... West Plains
Hogg, Garrett S., Jr. ..... Cabool
Mott, James R. ..... Hartville
Norman, Robert M. ..... Ava
Randall, Leslie ..... Licking
Reed, Henry L. ..... Licking
Ryan, Robert A. ..... Mountain Grove
Ryan, R. A., Jr. ..... St. Louis
Smith, Rollin H. ..... West Plains
Thornburgh, Albert H. ..... West Plains
Van Noy, Levi T. ..... Norwood
Womack, James R. ..... Houston

JACKSON COUNTY MEDICAL SOCIETY

Adams, Noah ..... Kansas City
Adelman, Arthur ..... Kansas City
Ahlefeld, Charles B. ..... Kansas City
Aisenstadt, E. Albert ..... Kansas City
Allbritain, J. William ..... Kansas City
Allebach, H. K. ..... Kansas City
Allen, Charles E. ..... Kansas City
Allen, Charles H. ..... Independence
Allen, Sylvia ..... Kansas City
Allen, William B. ..... Kansas City
Altringer, Arthur N. ..... Kansas City
Anderson, A. Isadore ..... Kansas City
Anderson, Raymond B. ..... Kansas City
Anderson, Richard W. ..... Kansas City
Anderson, W. Connelly ..... Kansas City
Arms, Arnold V. ..... Kansas City
Aschman, Theodore H. ..... Kansas City
Asher, A. Graham ..... Kansas City
Atcheson, Bellfield ..... Kansas City
Aull, John ..... Kansas City
Baer, Alvin J. ..... Kansas City
Baker, Wilbur A. ..... Kansas City
Baldwin, Frederick A. ..... Kansas City
Ball, James E. ..... Kansas City
Barnett, Gordon P. ..... Kansas City
Barry, Gerald W. ..... Kansas City
Bay, Merrill R. ..... Blue Springs
Beal, Homer A. ..... Kansas City
Beattie, Thomas J. ..... Kansas City
Becker, Richard R. ..... Kansas City
Bee, James E. ..... Kansas City
Beil, J. Wallace ..... Kansas City
Belaval, Gustavo S. ..... Kansas City, Kan.
Bell, J. Vardiman ..... Kansas City
Bellows, George E. ..... Laguna Beach, Calif.
Belot, Monti L. ..... Kansas City
Bennett, James D. ..... Kansas City
Bennett, Joseph S. ..... Independence
Bergmann, Victor H. ..... Kansas City
Bernreiter, Michael ..... Kansas City
Berry, Maxwell G. ..... Kansas City
Bills, Marvin L. ..... Kansas City
Black, Donald R. ..... Kansas City
Black, Eugene C. ..... Kansas City
Black, W. Byron ..... Kansas City
Bohan, Peter T. ..... Kansas City
Boody, Robert James ..... Kansas City
Border, Charles T. ..... Kansas City
Boughnou, Harvey P. ..... Kansas City
Bourke, Timothy S. ..... Kansas City
Boutros, Amin ..... Kansas City
Bower, Richard L. ..... Kansas City
Bowser, John F. ..... Kansas City
Braden, David R. ..... Mission, Kan.
Brainard, Benjamin F. ..... Martin City
Brams, Jack Bernard ..... Kansas City
Breyfogle, Herbert S. ..... Clayton

Brown, Adrian J. ..... Kansas City
Brown, Irwin S. ..... Kansas City
Broyles, Glen H. ..... Kansas City
Brumm, Lawrence W. ..... Kansas City
Brust, Carl H. ..... Kansas City
Bryant, Homer L. ..... Kansas City
Buckingham, William W. ..... Kansas City
Buhler, Victor B. ..... Kansas City
Bunting, Williston P. ..... Kansas City
Burns, Jonathan E. ..... Charles Town, W. Va.
Byers, Philip L. ..... Kansas City
Cain, Arthur S., Jr. ..... Kansas City
Caldwell, John K. ..... Kansas City
Callaway, Luther M. ..... Kansas City
Campbell, Frederick B. ..... Kansas City
Cantrell, Cyrus D. ..... Kansas City
Capell, Clarence S. ..... Kansas City
Carbaugh, Glenn C. ..... Kansas City
Carlson, Hjalmar E. ..... Kansas City
Carmichael, Francis A., Jr. ..... Kansas City
Carrier, Edson C. ..... Kansas City
Casebolt, Milton B. ..... Kansas City
Casford, Ralph S. ..... Kansas City
Castelaw, Rush E. ..... Kansas City
Castles, John E. ..... Kansas City
Cavaness, Ernest W. ..... Houston, Tex.
Chambers, James Q., Jr. ..... Kansas City
Clark, Charles F. ..... Lynwood, Calif.
Clark, Harold B. ..... Kansas City
Clasen, Arthur C. ..... Kansas City
Clemmons, Walter M. ..... Kansas City
Coburn, Donald F. ..... Kansas City
Cochrane, Joseph J. ..... Kansas City
Coffey, Ralph R. ..... Kansas City
Coffey, William H. ..... Kansas City
Coffin, Helen K. ..... Kansas City
Coffin, Theodore A. ..... Kansas City
Coffman, Delmar L. ..... Leeds
Cohen, Harry K. ..... Kansas City
Colby, Buford M. ..... Kansas City
Comboy, Lawrence J. ..... Kansas City
Connell, Evan S. ..... Kansas City
Conover, Charles C. ..... Kansas City
Conrad, Joseph A. ..... Chillicothe
Cooper, John H. ..... Kansas City
Cordry, Harold V. ..... Kansas City
Counsell, Chester M. ..... Kansas City
Cowherd, Joseph B. ..... Kansas City
Cox, Kenneth E. ..... Kansas City
Culbertson, William F. ..... Springfield
Cummins, Walter F. ..... Kansas City
Curdy, Robert J. ..... Kansas City
Curran, Edward J. ..... Kansas City
Curran, Kevin E. ..... Kansas City
Curran, Maurice D. ..... Kansas City
Danglade, James H. ..... Kansas City
Dann, David S. ..... Kansas City
Darnell, Thomas F. B. ..... Kansas City
Davis, Albert W. ..... Kansas City
Davis, Kenneth A. ..... Kansas City
Davis, Robert C. ..... Kansas City
DeMaria, Peter F. ..... Kansas City
DeMotte, John Allan ..... Kansas City
Dennie, Charles C. ..... Kansas City
DeVilbiss, E. F. ..... Kansas City
Deweese, E. R. ..... Kansas City
Dickson, Frank D. ..... Kansas City
Dimond, Edgar A. ..... Kansas City
Diveley, Rexford L. ..... Kansas City
Dixon, Otto J. ..... Kansas City
Dlabal, Luke J. ..... Kansas City
Donaldson, Clyde O. ..... Kansas City
Donaldson, J. Earle ..... Kansas City
Dorsey, John W. ..... Long Beach, Calif.
Draney, Thomas L. ..... Kansas City
Duderstadt, Warren M. ..... Kansas City
Duer, Mildred C. ..... Kansas City
Dugay, Harry W. ..... Kansas City
Duncan, Ralph E. ..... Kansas City
Duncan, William H. ..... Kansas City
Dwyer, Hugh L. ..... Kansas City
Edde, Clifford G. ..... Kansas City
Edmonds, Devilla D. ..... Kansas City
Edmundson, J. Phil ..... Kansas City
Eldridge, Charles J. ..... Kansas City
Elliott, B. Landis ..... Kansas City
Elliott, James R. ..... Kansas City
Elliott, Raymond G. ..... Kansas City
Elston, George B. ..... Kansas City
Engel, Lawrence P. ..... Kansas City
Eslick, Ralph L. ..... Raytown
Esmond, Marie ..... Kansas City
Esslinger, Gillis A. ..... San Francisco, Calif.
Etzenhouser, Russell D., Jr., Independence
Eubank, Ambrose E. ..... Kansas City
Eubank, Dillard M. ..... Raytown
Eubank, William R. ..... Kansas City
Evans, E. John E. ..... Kansas City
Ewing, Bertha E. ..... Kansas City
Fair, Shields W. ..... Kansas City
Farley, Claude C. ..... Kansas City
Farney, Jacob P. ..... Kansas City
Farnsworth, Jesse J. ..... Kansas City
Feierabend, Frank L. ..... Kansas City
Feist, George V. ..... Kansas City
Ferguson, Eugene H. ..... Kansas City
Ferguson, James T., Jr. ..... Topeka, Kan.
Ferris, Carl R. ..... Kansas City
Ferster, William R. ..... Kansas City
Findley, James W. ..... Kansas City
Flanders, Horace F. ..... Kansas City
Florian, Albert J. ..... Kansas City
Forman, Frank S., Jr. ..... Kansas City
Francisco, Clarence ..... Kansas City
Frazier, V. Eugene ..... Mesa, Ariz.
Fredeen, Robert C. ..... Kansas City
Frick, John P. ..... Kansas City
Friedman, Morris L. ..... Kansas City
Gainey, Harold L. ..... Kansas City
Ganley, William C. ..... Kansas City
Gard, Raymond F. ..... Independence
Gaskins, John H. ..... Kansas City
Gempel, Paul A. ..... Kansas City
Gentry, E. N., Jr. ..... Kansas City
Geraughty, Edward ..... Kansas City
Gestring, Hugh A. ..... Kansas City
Getelson, Joseph ..... Kansas City
Gibson, Edward T. ..... Kansas City
Gilkey, Harry M. ..... Kansas City
Gilles, Clifford L. ..... Kansas City
Gilliland, Oliver S. ..... Kansas City
Gillmor, Charles S. ..... Greenwich, Conn.
Ginsberg, A. Morris ..... Kansas City
Ginsberg, Edward L. ..... Kansas City
Ginsberg, Norman A. ..... Kansas City
Gist, William L. ..... Kansas City
Gist, William Wilmet ..... Kansas City
Glasscock, Ernest L. ..... Kansas City
Goerner, Paul G. ..... Kansas City
Goldman, Max ..... Kansas City
Goodman, Leroy ..... Kansas City
Goodson, William H., Jr. ..... Kansas City
Grabske, Charles F. ..... Santa Ana, Calif.
Graham, James W. ..... Kansas City
Graham, Wallace H. ..... Washington, D. C.
Grandstaff, Eleanor H. ..... Kansas City
Grauerholz, James William ..... Kansas City
Greaves, Eli A. ..... Kansas City
Green, John R. ..... Independence
Green, Stanley L. ..... Independence
Greene, Joseph Wayne ..... Independence
Greene, W. Wallace ..... Kansas City
Griffith, George W. ..... Kansas City
Growdon, John A. ..... Kansas City
Guffey, Don Carlos ..... Kansas City
Guggenheim, Lewis C. ..... Kansas City
Haggen, Margaret E. ..... Kansas City
Hall, D. Walton ..... Kansas City
Hall, James R. ..... Kansas City
Hall, Thomas Bryan ..... Kansas City
Hallberg, John W. ..... Kansas City
Halperin, Phillip H. ..... Kansas City
Hamilton, Buford G. ..... Richmond
Hamilton, Eugene P. ..... Kansas City
Hamilton, Hugh G. ..... Kansas City
Hardacre, Ruth Anna ..... Kansas City
Harding, Carl W. ..... Grandview
Harless, Morris S. ..... Kansas City
Harrington, G. Leonard ..... Kansas City
Harrison, Addison M. ..... Kansas City
Hart, William W. ..... Kansas City
Hashinger, Edward H. ..... Kansas City
Haynes, Lee ..... Kansas City
Haynes, Solon Earl ..... Kansas City
Hearst, Allen L. ..... Kansas City
Heller, B. Marcus ..... Kansas City
Heller, Edward P. ..... Kansas City
Helman, Richard G. ..... Kansas City
Helwig, Ferdinand C. ..... Kansas City
Hemphill, Paul H. ..... Kansas City
Herbst, Frank ..... Kansas City
Herrman, George V. ..... Kansas City
Hess, Henry Lewis ..... Kansas City
Hess, Paul D. ..... Kansas City
Hetherington, Ellery M. ..... Kansas City
Hibbard, Blaine Zook ..... Address Unknown
Hickerson, John C. ..... Independence
Hickerson, Wm. H. ..... Independence
Hill, Jack H. ..... Kansas City
Hill, Jesse N. ..... Independence
Hink, Frederick W. ..... Kansas City
Hodge, Robert H. ..... Kansas City
Hodgson, Frank H. ..... Kansas City
Hoffman, Jacob S. ..... Kansas City
Hoffmann, R. Lee ..... Kansas City
Hofmann, Ottokar ..... Kansas City
Hogan, Daniel F. ..... Kansas City
Hogue, Frank S. ..... Kansas City
Holbrook, Walter F. ..... Kansas City
Hollis, Luther T. ..... Kansas City
Hollister, Wilbur L. ..... Corpus Christi, Tex.
Hollweg, Kenneth C. ..... Kansas City
Hook, Waller G. ..... Kansas City
Horigan, Joseph A. ..... Kansas City
Howard, John C., Jr. ..... Kansas City
Howard, Joseph W. ..... Kansas City
Hoxie, George H. ..... Berkeley, Calif.
Hungate, Carroll P. ..... Address Unknown
Hunt, Claude J. ..... Kansas City
Hunter, Martin P. ..... Kansas City
Hurst, Martin J. ..... New Orleans, La.
Hurwitt, Frank ..... Kansas City
Irland, Robert D. ..... Kansas City
Irwig, Fred ..... Kansas City
Jackson, Carl A. ..... Kansas City
Jackson, Douglas A. ..... Kansas City
Jackson, William R. ..... Kansas City
Jacob, Walter P. ..... Kansas City
Jaime, Nicholas ..... Kansas City
Jansen, Robert ..... Kansas City
Jarvis, James A. ..... Kansas City
Jeffries, Robert C. ..... Kansas City
Jennett, Harry N. ..... Kansas City
Jennett, James Harvey ..... Kansas City
Johnson, Edgar W. ..... Kansas City
Johnson, Edgar W., Jr. ..... Kansas City
Johnson, Paul A. ..... Kansas City
Johnson, Thomas Maxwell ..... Kansas City
Johnstone, Paul Nugent ..... Kansas City
Jones, George H. ..... Kansas City
Jones, Harry Lander ..... Kansas City
Jones, Kneeland P. ..... Kansas City
Jones, Maurice L. ..... Kansas City
Jones, Theodore R. ..... Kansas City
Juarez-Reyna, Guillermo ..... Kansas City
Kealhofer, George C. ..... Kansas City
Keeling, Irene C. ..... Kansas City
Keith, Willis E. ..... Kansas City
Kelly, Eugene H. ..... Kansas City
Kennedy, John Oscar ..... Kansas City
Kent, Bela Kaszas ..... Kansas City
Kent, Clifford F. ..... Kansas City
Kerr, Russell W. ..... Kansas City
Ketcham, William M. ..... Kansas City
Ketron, Marvin B. ..... Kansas City
Kienberger, Paul A. ..... Kansas City
Kiene, Richard H. ..... Kansas City
Kitchen, William M. ..... Kansas City
Klein, Edward H. ..... Kansas City
Klepinger, Dayton P. ..... Kansas City
Knappenberger, George E. ..... Kansas City
Knerr, Ellsworth B. ..... Address Unknown
Knight, John S. ..... Kansas City
Knight, Lyle B. ..... Lee's Summit
Knox, Andrew C. ..... Kansas City
Koehler, Charles A. ..... Kansas City
Koenig, Frank J. ..... Kansas City
Kohn, Cecil M. ..... Kansas City
Koritschoner, Robert ..... Kansas City
Korth, William M. ..... Kansas City
Kovitz, Louis ..... Kansas City
Kranson, Seymour J. ..... Independence
Krueger, Owen W. ..... Kansas City
Kuhn, William F., II ..... Kansas City
Kyger, E. Ross ..... Kansas City
Kyger, Fred B. ..... Kansas City
Kyner, Thomas A. ..... Kansas City
Lacy, N. Eugene ..... Kansas City
Laffoon, France L. ..... Raytown
Lakaytis, Charles A. ..... Kansas City
Lamar, Frederick C. ..... Kansas City
Laning, J. Halcombe ..... Kansas City
Lapp, Harry C. ..... Kansas City
Lapp, John G. ..... Kansas City
Laurenzana, Frank Paul ..... Kansas City
Layton, Ira C. ..... Kansas City
Lee, Chester E. ..... Kansas City
Lee, George C. ..... Kansas City
Lehner, Richard L. ..... Kansas City
Leifer, William W. ..... Kansas City
Leitch, Cecil George ..... Kansas City
Leitz, Frank Bantley ..... Kansas City
Lemoine, Albert N. ..... Kansas City
Lemoine, A. N., Jr. ..... Kansas City
Lennon, Benjamin B. ..... Kansas City
Leonard, Ward H. ..... Kansas City, Kan.
Levey, Harry B. ..... Kansas City
Lewis, William E. ..... Kansas City
Lieberman, B. Albert ..... Kansas City
Lieberman, B. Albert, Jr. ..... Kansas City
Liersch, Joseph C. ..... Kansas City
Lilly, Terry Erastus ..... Kansas City
Lindquist, Carl N. ..... Kansas City
Link, Vance Eugene ..... Independence
Littauer, David ..... Kansas City
Lockwood, Ira H. ..... Kansas City
Lower, Mary J. ..... Kansas City
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of a series honoring the contributions of eminent personalities of medicine and pharmacy.

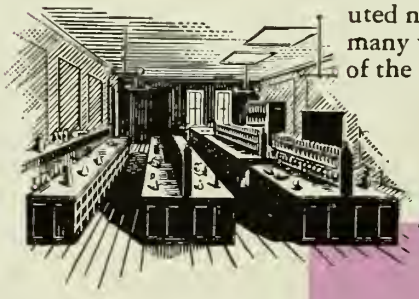
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Pharmacist and Teacher

Hailed, even in his own time, as the "father of American pharmacy", William Procter, Jr. was distinguished as an educator and scientific editor.

In 1846 his alma mater, Philadelphia College of Pharmacy, named him professor of pharmacy—the first such chair in the United States. He was elected president of the American Pharmaceutical Association in 1862.

Collaborating with Theophilus Redwood, he compiled "Practical Pharmacy", the first textbook of its kind published in this country; as editor of the American Journal of Pharmacy, Procter contributed no fewer than 550 original articles, and made many valuable contributions to successive editions of the U. S. Pharmacopoeia.



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Underwood, Johnson, Jr. .. N. Kansas City
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Johnson, Edward E. ..... Joplin
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Kuhn, John R., Jr. ..... Joplin
Laney, Ronald L. ..... Joplin
Leaming, Harry A. ..... Joplin
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McIntire, Emery J. ..... Carthage
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Mack, Mary L. ..... Joplin
Maddox, John D. ..... Joplin
Meredith, Guy I. ..... Joplin
Mitchell, Ernest ..... Joplin
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Neff, Robert L. ..... Joplin
Newkirk, Richard C. ..... Joplin
Poor, Carl W. ..... Diamond

Post, Winfred L. ..... Joplin
Powers, Everett ..... Carthage
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Putnam, John A. ..... Carthage
Reid, Charles T. ..... Joplin
Rosenthal, Frances E. ..... Joplin
Schulte, G. A. ..... Joplin
Scorse, Sidney W. ..... Joplin
Simmons, Leroy ..... Hot Springs, Ark.
Sims, John L. ..... Joplin
Smith, William Russell ..... Carthage
Stormont, Riley M. ..... Webb City
Van Urk, Jules B. ..... Carthage
Walker, Paul W. ..... Joplin
Webster, Roger W. ..... Carthage
Whitten, M. Foster ..... Carthage
Wilbur, Herbert L. ..... Joplin
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York, William B. ..... Sarcoxie

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Gibson, Walter E., Sr. ..... DeSoto
Hopson, George ..... DeSoto
McKinstry, Karl V. ..... DeSoto
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Parker, Harry F. ..... Warrensburg
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Lindsay, John W. ..... Conway
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Saylor, Edward ..... Phillipsburg
Summers, Jacob H. ..... Lebanon
Waihoja, William J. ..... Lebanon

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Gentry, Merritt L. ..... Springfield
Jessell, C. Todd ..... Address Unknown
Johnston, A. D. ..... Fort Scott, Kan.
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Kelling, George A. ..... Waverly
Kelling, Jordan ..... Waverly
Koppenbrink, Walter E. ..... Higginsville
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Greene, Harry L. ..... Hannibal
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Murphy, Bernard L. ..... Hannibal
Norton, Harry B. ..... Hannibal
Pipkin, Walter D. ..... Monroe City
Reichman, John J. ..... Hannibal
Salyer, Charles E. ..... St. Joseph
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Pickett, Clarence P. ..... Princeton
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McRaven, Claude ..... Marston
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Edmondson, John L. ..... Stella
Guthrie, John A. ..... Neosho
Lamson, Roy C. ..... Neosho
LeHew, Robert M. ..... Neosho
Lentz, Harold C. ..... Neosho
Reynolds, James R. ..... Neosho
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Whitehead, Frank F. ..... Neosho

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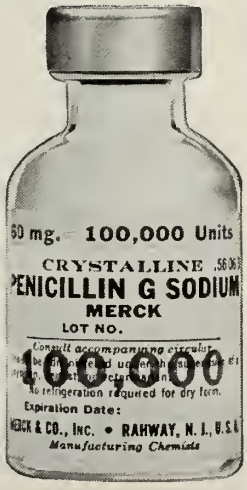
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★ Minimum irritation on injection as a result of removal of therapeutically inert materials.

★ Meets exacting Government specifications for Crystalline Penicillin G.

★ Penicillin G has been proved to be a highly effective therapeutic agent.



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1. Dickinson, R. L.: Techniques of Conception Control. Baltimore, Williams and Wilkins Co., 1942.
2. Eastman, N. J., and Scott, A. B.: Human Fertility 9:33 (June) 1944.
3. Warner, M. P.: J. A. M. A. 115:279 (July 27) 1940.

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Matteson, Frank B. ..... Grant City
Persons, Robert C. ..... Maryville
Reutter, Garfield A. ..... Rockport
Rose, Frank H. ..... Albany
Rosenthal, Arthur D. ..... Barnard
Ross, Pren J. ..... Grant City
Settle, Charles T. ..... Rockport
Settle, Emmett B. ..... Rockport
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Wallis, William M., Jr. ..... Maryville
Waugh, Clifton M. ..... Tarkio

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Grim, George E. ..... Kirksville
Hart, Pearl Vance ..... Coatesville
Henry, Clifford E. ..... Kirksville
Herington, Warner ..... Green City
Holman, Jurney H. ..... Unionville
Humphrey, Henry M. ..... Brashear
Luman, Frank E. ..... Edina
McReynolds, U. Rial ..... Knox City
Miller, Alfred F. ..... Kirksville
Miltenberger, Val E. ..... Kirksville
Montgomery, Enoch A. ..... Unionville
Montgomery, John S. ..... Milan
Nulton, Ida May ..... Lancaster
Smith, Edward S. ..... Kirksville
Stickler, Ralph O. ..... Kirksville
Sullivan, William J. .... Philadelphia, Pa.
Wimp, J. J. ..... Kirksville

PEMISCOT COUNTY MEDICAL SOCIETY

Aquino, Philip J. ..... Caruthersville
Bond, Francis G. ..... Hayti
Cain, Charles F. ..... Caruthersville
Castles, Charles C. ..... Caruthersville
Cook, O. W. ..... Caruthersville
Cooper, Lawrence E. ..... Cooter
Denton, Levi D. ..... Hayti
Limbaugh, Walter R. ..... Hayti
Luten, Joseph B. ..... Caruthersville
Phipps, George W. ..... Caruthersville
Pinion, John R. ..... Caruthersville
Roberson, John H. ..... Hayti
Shirey, Arnold G. ..... Hayti
Taylor, Edward ..... Steele

PERRY COUNTY MEDICAL SOCIETY

Bailey, William H. ..... Perryville
Bredall, J. J. ..... Perryville
Carron, Oscar A. ..... Perryville
Feltz, L. W. ..... Perryville
Fischer, Theodore ..... Altenburg
Miller, Oliver Jerome ..... Perryville

PETTIS COUNTY MEDICAL SOCIETY

Beckemeyer, William A. ..... Sedalia
Bess, William E. ..... Sedalia
Bishop, William T. ..... Sedalia
Boger, James W. ..... Sedalia
Brady, Charles H. ..... Sedalia
Campbell, Albert J. ..... Sedalia
Cannady, J. E. ..... Sedalia
Carlisle, John B. ..... Sedalia
Dyer, David P. ..... Sedalia
Edwards, D. R. ..... Sedalia
Fogle, Robert L. ..... Otterville
Heaton, Asa H. ..... Sedalia
Hite, Henry A. ..... Green Ridge
Holtzen, Ernst E. ..... Smithton
Long, Frank B. ..... Sedalia
Mitchell, John E. ..... Sedalia
Monroe, Alfred E. ..... Sedalia
Morley, Frank R. ..... Sedalia
Murray, John Watts ..... Sedalia
Osborne, Charles D. ..... Sedalia
Parkhurst, Charles L. ..... Houstonia
Rodeman, John M. ..... Sedalia
Schaefer, Edward H. ..... Sedalia
Shy, Milton P. ..... Sedalia
Snavely, Edmund C. ..... Sedalia
Stauffacher, C. Gordon ..... Sedalia
Titsworth, Guy ..... Sedalia
Trader, Charles B. ..... Sedalia
Walker, William E. ..... LaMonte
Walter, Archie L. ..... Sedalia
Wheeler, William M. ..... Sedalia

PHELPS-CRAWFORD-DENT-PULASKI COUNTY MEDICAL SOCIETY

Baysinger, S. L. ..... Rolla
Breuer, R. E. ..... Newburg
Breuer, William H. ..... St. James
Davis, Harry H. ..... Rolla
Dillon, William G. ..... Salem
Drake, Avery A. ..... Rolla
Elders, Frank A., Jr. ..... Rolla
Feind, Earl E. ..... Rolla
Hammler, Christiana V. ..... St. James
Hart, Martin M. ..... Salem
Henson, Lafayette L. ..... Bunker
Horne, Albert H. ..... Steelville
Hughes, Edgar O. ..... Dixon
Hunt, Lloyd H. ..... Salem
Irwin, William F. ..... Leasburg
Joseph, George E. ..... Salem
Lytle, William R. ..... Waynesville
McFarland, A. Sidney ..... Rolla
Mallette, Cyrus ..... Crocker
Miller, Clyde S. ..... Waynesville
Parker, Rainey C. ..... Steelville
Reed, R. W. ..... Richland
Reeves, George W. ..... Fulton
Scott, Elijah A. ..... St. James
Smith, J. E. ..... Rolla
Stricker, Emil A. ..... St. James
Underwood, John B. ..... St. James
Underwood, Millard K. ..... Rolla

PIKE COUNTY MEDICAL SOCIETY

Andrae, Robert L. ..... Louisiana
Bankhead, Charles L. ..... Paynesville
Barrymore, Eugene ..... Bowling Green
Bartlett, Ezekiel M. ..... Clarksville
Biggs, James B. ..... Bowling Green
Cunningham, Eric A. ..... Louisiana
Lewellen, Charles H. ..... Louisiana
Lewellen, Charles P. ..... Louisiana
Pearson, Donnell M. ..... Louisiana
Pitts, Eugene, III ..... Altodena, Calif.
Scott, Clive D. ..... Louisiana
Treadway, W. W. ..... Silex
Wilcoxen, William B. .. Ft. Snelling, Minn.

PLATTE COUNTY MEDICAL SOCIETY

Calvert, Lewis C. ..... Weston
Durham, Silas L. ..... Dearborn
Langford, E. K. ..... Platte City
Robinson, John A. ..... Edgerton
Underwood, Johnson ..... Parkville
Wilson, Robert P. C. ..... Platte City
Wood, Walter S. ..... Trimble

RAY COUNTY MEDICAL SOCIETY

Buehrer, Cletus E. ..... Lawson
Cook, Thomas F. ..... Richmond
Gay, Elmer E. ..... Richmond
Goldberg, I. E. ..... Kansas City
Greene, Luther D. ..... Richmond
Reed, Carl H. ..... Carrollton
Shouse, Edwin ..... Lawson

ST. CHARLES COUNTY MEDICAL SOCIETY

Barnard, Charles A. ... Portage des Sioux
Brandt, Benjamin J. ..... Foristell
Budke, Robert J. ..... St. Charles
Canty, Eugene J. ..... St. Charles
Clay, Calvin ..... St. Charles
Dyer, John H. ..... Warrenton
Goodman, Nathaniel ..... St. Louis
Hayden, Ralph O. ..... St. Charles
Jenkins, Joseph M. ..... St. Charles
Kister, George E. ..... St. Charles
McMurray, Herbert C. ..... Wentzville
Neubeiser, Ben L. ..... St. Charles
Schmidt, William C. ..... Augusta
Schneider, Vincent A. ..... St. Charles
Schulz, A. P. E. ..... St. Sharles
Towers, Orville W. ..... St. Charles

ST. FRANCOIS-IRON-MADISON-WASHINGTON-REYNOLDS COUNTY MEDICAL SOCIETY

Appleberry, Charles H. ..... Flat River
Appleberry, Dailey ..... River Mines
Aubuchon, William E. ..... Leadwood
Barber, Moses B. ..... Fredericktown
Barron, W. Harry ..... Fredericktown
Bugg, Andrew F. ..... Ellington
Bull, Ben M. ..... Ironton
Chilton, John A. ..... Address Unknown
Cline, Harold H. ..... Piedmont
Crouch, F. Richard ..... Farmington
Evans, Albert L. ..... Bonne Terre
Gaebe, Harold C. ..... Desloge
Gale, Frank W. ..... Bismarck
Gay, George ..... Ironton
Graves, George T. ..... Memphis, Tenn.
Grossman, Marvin ..... Fredericktown
Harland, R. E. ..... Ironton
Haw, Marvin T., Jr. ..... Bonne Terre
Hoctor, Emmett F. ..... Farmington
Hunt, John W., Jr. ..... Leadwood
Lanzafame, S. Anthony ..... Farmington
Martin, James H. ..... Ironton
Mulkey, James R. ..... Farmington
Nichols, Frank J. ..... Farmington
Poston, Harry ..... Bonne Terre
Pyrtle, James R. ..... Centerville
Robinson, Bradbury J. ..... Farmington
Roebber, Harry M. ..... Bonne Terre
Schrader, Paul J. ..... Address Unknown
Shephard, H. C. ..... Flat River
Slaughter, Shelby C. ..... Fredericktown
Sutton, Charles E. ..... Bonne Terre
Taylor, Van W. ..... Bonne Terre
Thurman, Joseph L. ..... Potosi
Traubitz, Arnold ..... Leadwood
Watkins, George L. ..... Farmington
Watkins, George L., Jr. ..... Farmington
Yeargain, John P. ..... Irondale

STE. GENEVIEVE COUNTY MEDICAL SOCIETY

Clapsaddle, Clare J. ..... Ste. Genevieve
Lanning, Richard C. ..... Ste. Genevieve
Lanning, Robert W. ..... Ste. Genevieve
Sexauer, Arthur E. ..... Ste. Genevieve

ST. LOUIS COUNTY MEDICAL SOCIETY

Alex, Morris ..... St. Louis
Armstrong, John H. ..... Kirkwood
Aylward, H. J. ..... Pace, Miss.
Backlar, Joseph ..... Richmond Heights
Bailey, William H. ..... St. Louis
Barger, J. Blanchard ..... St. Louis
Barnes, Francis M. ..... St. Louis
Bassett, Sam A. ..... St. Louis
Bernstorff, Paul H. ..... St. Louis
Berwald, Irwin I. ..... University City
Bishop, Mary M. ..... St. Louis
Blanchard, Irene M. ..... Webster Groves
Bone, Merle ..... Overland
Bortnick, Arthur R. ..... University City
Bosserman, David C. ..... Elsa, Tex.
Brand, Earl L. ..... Webster Groves
Breckenridge, Elmer O. ..... Maplewood
Brossard, Pierre M. ..... Maplewood

Brown, Eugene R. ..... University City
Brown, Thomas K. ..... St. Louis
Brown, William S. ..... St. Louis
Brownton, Sheldon S. ..... St. Louis
Canepa, Francis J. ..... St. Louis
Canepa, John B. ..... St. Louis
Clemens, James R. ..... Webster Groves
Coleman, William G. ..... St. Louis
Colgate, Cleon E. ..... Amarillo, Tex.
Compton, James R. ..... St. Louis
Cone, Alfred J. ..... Chesterfield
Cooke, Jean V. ..... St. Louis
Corley, Henry N. ..... Webster Groves
Costrino, Joseph A. ..... St. Louis
Dalton, Marvin ..... Fenton
Daly, John R. ..... St. Louis
Darrow, Arthur C. ..San Fernando, Calif.
Davis, Irl R. ..... St. Louis
Davis, Phillips N. ..... St. Louis
Denny, Chester H. ..... St. Louis
Denny, R. B. ..... Creve Coeur
Diamond, Jerome ..... St. Louis
Dill, Foster A. ..... Maplewood
Dowd, James F., Jr. ..... New York
Drews, Leslie C. ..... St. Louis
Drum, Helen M. Aff. ..... Clayton
Dyer, C. P. ..... St. Louis
Ellison, Leroy E. ..... Maplewood
Elson, Julius ..... University City
Emery, Edgar V. N. ..... St. Louis
Evans, Emery E. ..... St. Louis
Fingert, H. H. ..... St. Louis
Finley, Freeman L. ..... Overland
Flynn, George W. ..... Clayton
Forsman, Waldo W., Jr. ..... St. Louis
Foster, Robert L. ..... St. Louis
Froelich, Edwin J. ..... St. Louis
Furlong, Robert D. ..... St. Louis
Gage, Helen L. B. ..... Webster Groves
Gaines, Quentin M. ..... Kirkwood
Gallagher, Edward T. ..... St. Louis
Gaston, Ralph E. ..... Webster Groves
Gaunt, Frank P. ..... Webster Groves
Gebert, Clara M. ..... Valley Park
Gilliland, Charles E. ..... St. Louis
Gitt, Joseph J. ..... St. Louis
Goldman, Hyman J. ..... St. Louis
Goodrich, Harold A. ..... Webster Groves
Gowen, Leo F. ..... Glendale
Graeser, Richard G. ..... Kirkwood
Griot, Albert J. ..... St. Louis
Grosskreutz, Joseph A. ..... St. Louis
Hageman, Paul O. ..... Clayton
Hale, Tyre H. ..... St. Louis
Hampton, Oscar P., Jr. ..... St. Louis
Hamtil, Edward W. ..... St. Louis
Hanlon, Thomas J. ..... St. Louis
Hans, Willard J. ..... St. Louis
Hardy, Guerdan ..... St. Louis
Harrison, Stanley L. ..... St. Louis
Hayward, John D. ..... St. Louis
Heideman, Milo L. ..... St. Louis
Helbing, Edward J. ..... St. Louis
Hendin, Aaron ..... St. Louis
Hengen, Henry E. ..... Pattonville
Hertel, Albert L. ..... St. Louis
Hobbs, Alonzo G. ..... St. Louis
Hobbs, Clarence L. ..... St. Louis
Hobbs, John E. ..... St. Louis
Hofsommer, Armin C. ...Webster Groves
Holden, Raymond F. ..... St. Louis
Holscher, Edward C. ..... Webster Groves
Howe, Louis F. ..... Brentwood
Huck, Frank F. ..... Fenton
Hughes, Clarence O. ..... Ferguson
Irick, Carl C. ..... Webster Groves
Jacobs, Gustave E. ..... St. Louis
Jansen, Richard W. ..... Manchester
Jensen, Julius ..... St. Louis
Johnson, Roy ..... Ferguson
Jones, Augustin ..... Clayton
Jones, Dorothy J. ..... St. Louis
Jones, Garnett ..... St. Clair
Jones, James B. ..... Brentwood
Kelley, Walter L. ..... Affton
Kendis, Joseph B. ..... St. Louis
Kessler, Joseph J. ..... St. Louis
Kingsland, Robert C. ..... Clayton
Klinkerfuss, George H. ..... St. Louis
Kloecker, Herman J. ..... Overland
Kloeppel, Carl F. ..... Kirkwood
Knabb, Frank P. ..... Valley Park
Koch, Otto W. ..... Clayton
Koch, Robert E. ..... Clayton
Konzelman, John A. ..... St. Louis
Kuritz, Albert B. ..... Memphis, Tenn.
Lerner, Abe F. ..... University City
Leslie, Charles H. ..... Kirkwood
Levey, Simon A. ..... St. Louis
Loving, B. Rush ..... Ballwin
Luckey, Horace L. ..... Maplewood
McLean, Royal C. ..... Kirkwood
McNearney, Joseph ..... St. Louis
McShane, Quentin W. ..... St. Louis
Magidson, Joseph ..... Clayton
Magness, Guy N. ..... University City
Marcus, Morris D. ..... University City
Marmor, William A. ..... St. Louis
May, Benjamin F. ..... St. Louis
Meador, James R. ..... Clayton
Mendonsa, Elsa L. ..... University City
Meyer, Theodore R. ..... Clayton
Moore, Harry G. ..... St. Louis
Moore, William E. ..... Normandy
Morse, Frank L. ..... St. Louis
Myers, Daniel W. ..... Detroit, Mich.
Nakada, James R. ..... St. Louis
Nash, W. Hampton ..... St. Louis
Niederwimer, John ..... St. Louis
North, William R. ..... Webster Groves
Nussbaum, Robert A. ..... St. Louis
Obrock, Louis C. ..... St. Louis
O'Connell, John ..... Overland
Ott, Harold J. ..... Maplewood
Owens, Bert O. ..... St. Louis
Ozias, Charles R. ..... Kansas City
Paddock, Richard ..... St. Louis
Park, George M. ..... Eureka
Passanante, Bartholomew M. ... St. Louis
Pawol, S. E. ..... St. Louis
Petersen, Fenton J. ..... St. Louis
Phillips, Hanford ..... St. Louis
Prichard, John A. ..... Overland
Proud, G. O'Neil ..... Overland
Reese, A. Victor ..... Webster Groves
Reilly, Pierce J. ..... St. Louis
Reinhard, E. H. ..... Webster Groves
Richtarsic, Stephen R. ..... St. Louis
Roberts, John R. ..... Brentwood
Robinson, Edith C. ..... St. Louis
Robinson, Ralph D. ..... Denver, Colo.
Rogers, C. H. ..... St. Louis
Rogers, John Asa ..... University City
Rosenberger, Charles F. ..University City
Roufa, Joseph F. ..... St. Louis
Rupe, Wayne A. ..... St. Louis
Rutledge, Paul E. ..... Kirkwood
Ryan, John J. ..... Clayton
Salisbury, William J. ..... Vigus
Sanders, Clifford E. ...Richmond Heights
Schattyn, John Martin ..... St. Louis
Scheele, M. H. ..... University City
Schmidt, Edmund M. ..... St. Louis
Schneider, Louis W. ..... St. Louis
Schumacher, James C. ..... St. Louis
Schwartz, Alfred S. ..... St. Louis
Scott, Henry F. ..... Manchester
Seabaugh, Ottis D. ..... Webster Groves
Shaver, Nellie A. ..... St. Louis
Silverberg, Charles ..... Koch
Skilling, David M., Jr. ..... St. Louis
Skinner, John Spalding ..... Clayton
Smit, Herbert M. ..... St. Louis
Smith, William A. ..... Webster Groves
Sommer, Conrad S. ..... St. Louis
Spencer, LeGrande D. ..... Kanab, Utah
Spitz, Milton A. ..... Brentwood
Spoeneman, Marlin C. ..... St. Louis
Staehle, Melvin E. ..... St. Louis
Stein, Harry J. ..... St. Louis
Stein, Leon A. ..... St. Louis
Steiner, Alexander J. ..... St. Louis
Stephens, William A. ..... St. Louis
Sterling, Charles E. ..... St. Louis
Sterling, John A. ..... Maplewood
Stern, Franz ..... Clayton
Stewart, Francis H. ..... St. Louis
Stocking, Lyman C. ..... St. Louis
Stoelzle, Joseph D. ..... Kirkwood
Stuebner, Roland W. ..... Clayton
Sutter, Richard A. ..... St. Louis
Tashma, Sigmund ..... St. Louis
Teiber, Frederick W. ..... St. Louis
Teneglia, Eutimio D. ..... St. Louis
Thatcher, J. O. M. ..... Ferguson
Tiernon, Luke B. ..... St. Louis
Townsend, James A. ..... Eureka
Townsend, Vincent F. ..... Maplewood
Townsend, William H. ..... Maplewood
Tremain, E. E. ..... Maplewood
Tureen, Louis Leon ..... St. Louis
Tversky, Edgar L. ..... St. Louis
Vitale, Nicholas S. ..... St. Louis
Vizgird, J. J. ..... St. Louis
Vollmar, Clarence J. ..... Webster Groves
Votaw, Robert E. ..... Clayton
Wall, Albert ..... St. Louis
Walther, Roy A. ..... Overland
Walther, Roy A., Jr. ..... Overland
Waters, E. B. ..... Kirkwood
Weber, William K. ..... Normandy
Weisman, Sol ..... St. Louis
Werth, Duncan S. ..... Kirkwood
Westrup, Arthur W. ..... Webster Groves
Westrup, Ellsworth A. ...Webster Groves
Whitener, Paul R. ..... Overland
Williamson, O. E. ..... St. Louis
Wolff, Charles ..... St. Louis
Wurzer, Arnold H. ..... St. Louis
Wyatt, Lois C. ..... Kirkwood
Yost, Walter B. ..... University City
Young, John S. ..... St. Louis
Zeitler, Walter A. ..... Jennings
Zinschlag, Edward N. ..... St. Louis

ST. LOUIS MEDICAL SOCIETY

Abel, Oliver, Jr. ..... St. Louis
Abell, Walter E. ..... St. Louis
Abrams, Hyman S. ..... St. Louis
Agress, Harry ..... St. Louis
Ainsworth, H. Smith ..... Pueblo, Colo.
Aitken, Louis F. ..... St. Louis
Aker, Cecil G. ..... St. Louis
Albrecht, Franklin H. ..... St. Louis
Alden, Arthur M. ..... St. Louis
Alexander, Harry L. ..... St. Louis
Alford, Leland B. ..... St. Louis
Allen, Duff S. ..... St. Louis
Allen, Henry C. ..... St. Louis
Allen, Hollis N. ..... St. Louis
Allen, Willard M. ..... St. Louis
Althans, Carl ..... St. Louis
Althaus, Carl J. ..... St. Louis
Altheide, J. Paul ..... St. Louis
Alvis, Bennett Y. ..... St. Louis
Alvis, Edmund B. ..... St. Louis
Ambrose, Olnev A. ..... St. Louis
Anderson, De Wayne C. ..Stanhope, Iowa
Anderson, Charles A. ..... St. Louis
Andrews, Raleigh K. ..... St. Louis
Anschuetz, Robert R. ..... St. Louis
Arbuckle, Millard F. ..... St. Louis
Arneson, A. N. ..... St. Louis
Arnold, Eugene L. ..... St. Louis
Aronberg, Lawrence M. ..... St. Louis
Arthur, John M. ...Camp Edwards, Mass.
Arzt, Franz ..... St. Louis
Atherton, Herbert R. ..East St. Louis, Ill.
Atkinson, William J., Jr. ..... St. Louis
AufderHeide, G. Russell ..... St. Louis
Aufderheide, William D. ..... St. Louis
Ayars, Treston R. ..... St. Louis
Baers, Harry A. ..... St. Louis
Bagby, James W. ..... St. Louis
Bailey, Frank A. ..... Address Unknown
Baker, Cecil H. ..... St. Louis
Baker, William M. ..... St. Louis
Baldree, Charles E., Jr. ..... St. Louis
Baltrusch, Oscar W. ..... Billings, Mont.
Bardenheier, F. G. A. ..... St. Louis
Bardenheier, J. Phil ..... St. Louis
Barger, John A. ..... St. Louis
Barker, Jesse W. ..... St. Louis
Barnes, Percival C. ..... St. Louis
Barnhart, Willard T. ..... Evansville, Ind.
Barrett, Ralph M. S. ..... St. Louis
Bartels, Leo ..... St. Louis
Bartlett, Robert W. ..... St. Louis
Bartlett, Willard ..... St. Louis
Bartlett, Willard, Jr. ..... St. Louis
Bartnick, Mitchel L. ..... St. Louis
Barton, Henry R. ..... St. Louis
Bassett, Charles W. ..... St. Louis
Bassett, Phillip H., Corono Del Mar, Calif.
Bassett, Robert B. ..... St. Louis
Bates, George C. ..... St. Louis
Batts, Jett McC. ..... Kodiak, Alaska
Bauer, Joseph A. ..... St. Louis
Bauer, Louis ..... St. Louis
Bauman, Charles M. ..... St. Louis
Baumgarten, Walter, Jr. ..... St. Louis
Beam, Sim F. ..... St. Louis
Beasley, L. Kenneth ..... St. Louis
Becke, William G. ..... St. Louis
Becker, Edward J. ..... St. Louis
Becker, George H. ..... St. Louis
Becker, George W. ..... St. Louis
Beckette, Edmund S. ..East St. Louis, Ill.
Beckham, Genevieve S. ..... St. Louis
Behan, Lawrence G. ..... St. Louis
Behrens, Louis H. ..... St. Louis
Beisbarth, Albert ..... St. Louis
Beisbarth, Carl C. ..... St. Louis
Bell, Robert M. ..... St. Louis
Benincasa, Anthony B. ..... St. Louis
Benjamin, Durand ..... St. Louis
Berard, Louis N. ..... St. Louis
Berg, Ralph ..... St. Louis
Berger, Edward J. ..... St. Louis
Bergman, Hugo. F. ..... St. Louis
Berland, Harry I. ..... St. Louis
Berman, Joseph P. ..... St. Louis
Berman, William ..... St. Louis
Bersche, Bertram L. ..... St. Louis
Bess, George C. ..... St. Louis
Bieri, Jacob A. ..... St. Louis

Bierman, Max John.....St. Louis
Bilsky, Nathan.....St. Louis
Bina, Albert F.....St. Louis
Bindbeutel, Arthur H.....St. Louis
Birdsall, Thomas C.....St. Louis
Birsner, Louis J.....St. Louis
Bisno, Daniel.....St. Louis
Black, James M.....St. Louis
Black, William D.....St. Louis
Blades, Brian.....Washington, D. C.
Blair, Vilray P.....St. Louis
Blaney, Loren F.....Sante Fe, N. Mex.
Bleyer, Adrien.....St. Louis
Bock, L. H.....St. Louis
Bockelman, Clifford H.....St. Louis
Boedeker, Roy V.....St. Louis
Boemer, Irving H.....St. Louis
Boemer, L. C.....St. Louis
Bohannon, Burton.....St. Louis
Bohne, William R.....St. Louis
Bohrer, Harry C.....St. Louis
Bosse, Edwin H.....St. Louis
Bottom, Donald S.....St. Louis
Bowdern, Edward H.....St. Louis
Bowerman, Harold H.....St. Louis
Bowersox, Warren A. .Minneapolis, Minn.
Boyd, Arthur M.....St. Louis
Bradley, Arthur H.....St. Louis
Bradley, Frank R.....St. Louis
Bradley, John Martin.....St. Louis
Bredeck, Joseph F.....St. Louis
Bremser, Harry L.....St. Louis
Brennan, J. Anthony.....St. Louis
Brennan, Robert V.....St. Louis
Bressler, Bernard.....Chicago, Ill.
Britt, Robert E.....St. Louis
Brockelmann, Emmy Ross.....St. Louis
Brockelmann, Erich.....St. Louis
Broeder, William H.....St. Louis
Bromberg, Leon.....St. Louis
Brookes, Henry S., Jr.....St. Louis
Brookes, Theodore P.....St. Louis
Brooks, Arthur C.....St. Louis
Broun, Goronwy O.....St. Louis
Brown, Arthur C. F.....St. Louis
Brown, Clyde O.....St. Louis
Brown, E. Eugene.....St. Louis
Brown, James B.....St. Louis
Brown, James M. .....Coronado, Calif.
Brown, Seymour.....St. Louis
Bryan, James H.....St. Louis
Bryan, William T. K.....St. Louis
Bublis, Norbert J.....St. Louis
Buddy, E. P.....St. Louis
Budke, Harold A.....Kansas City
Buhman, Rudolph.....St. Louis
Bulger, Harold A.....St. Louis
Burford, Cyrus E.....St. Louis
Burford, E. Humber.....St. Louis
Burke, Fabian J.....St. Louis
Burns, Francis J.....St. Louis
Burns, Stanley S.....St. Louis
Burst, Donald O.....St. Louis
Burst, Emil A.....St. Louis
Busch, Anthony K.....St. Louis
Busse, Ewald W.....Denver, Colo.
Byars, Louis T.....St. Louis
Byrns, Robert E.....St. Louis
Cady, Lee D.....Dallas, Tex.
Calhoun, James G.....St. Louis
Calkins, Delevan.....St. Louis
Callahan, William P., Jr.....Augusta, Ga.
Cameron, Solon.....St. Louis
Campbell, Cecil S.....St. Louis
Cappel, Powel B.....St. Louis
Caravelli, Anthony F.....St. Louis
Carney, Joseph E., Jr.....St. Louis
Carr, Archie D.....St. Louis
Carrier, John A.....St. Louis
Carroll, George A.....St. Louis
Carroll, Grayson.....St. Louis
Carter, Kenneth L.....St. Louis
Carter, William W.....Spokane, Wash.
Casey, Edwin J.....St. Louis
Cason, Elbert H.....New York
Cassidy, Charles A. ...Address Unknown
Cassidy, Leslie D.....St. Louis
Catanzaro, Anthony F.....St. Louis
Cavender, Savino W.....St. Louis
Chappell, Frances M.....St. Louis
Charles, Benjamin H.....St. Louis
Charles, Cecil M.....St. Louis
Charles, Joseph W.....St. Louis
Chopin, George F.....St. Louis
Clancy, James F.....St. Louis
Clapp, Roger W.....Clayton
Claridge, Ralph A.....St. Louis
Clark, Clarence L.....St. Louis
Clark, J. Fred.....St. Louis
Clark, Richard G.....St. Louis
Cleary, Frank.....St. Louis
Cleveland, Andrew H.....St. Louis
Cleveland, Horace F.....St. Louis
Clithero, W. Harvey.....St. Louis
Clopton, Malvern B.....St. Louis
Coates, Thomas A.....St. Louis
Codnere, John T.....Asheville, N. C.
Coffee, Cyrus E.....St. Louis
Coffin, Ernest L.....St. Louis
Cohen, Louis.....St. Louis
Coller, Frederick C.....St. Louis
Collins, John M.....St. Louis
Connor, John J.....St. Louis
Conrad, Adolph H.....St. Louis
Conrad, Adolph H., Jr.....St. Louis
Conrad, Marshall B.....Danville, Ill.
Conway, Francis.....St. Louis
Cook, James T.....St. Louis
Cook, Jerome E.....St. Louis
Cook, Ralph L.....St. Louis
Cook, Robert J.....St. Louis
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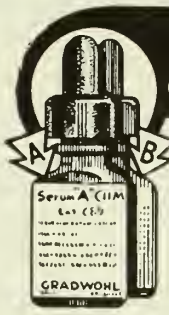
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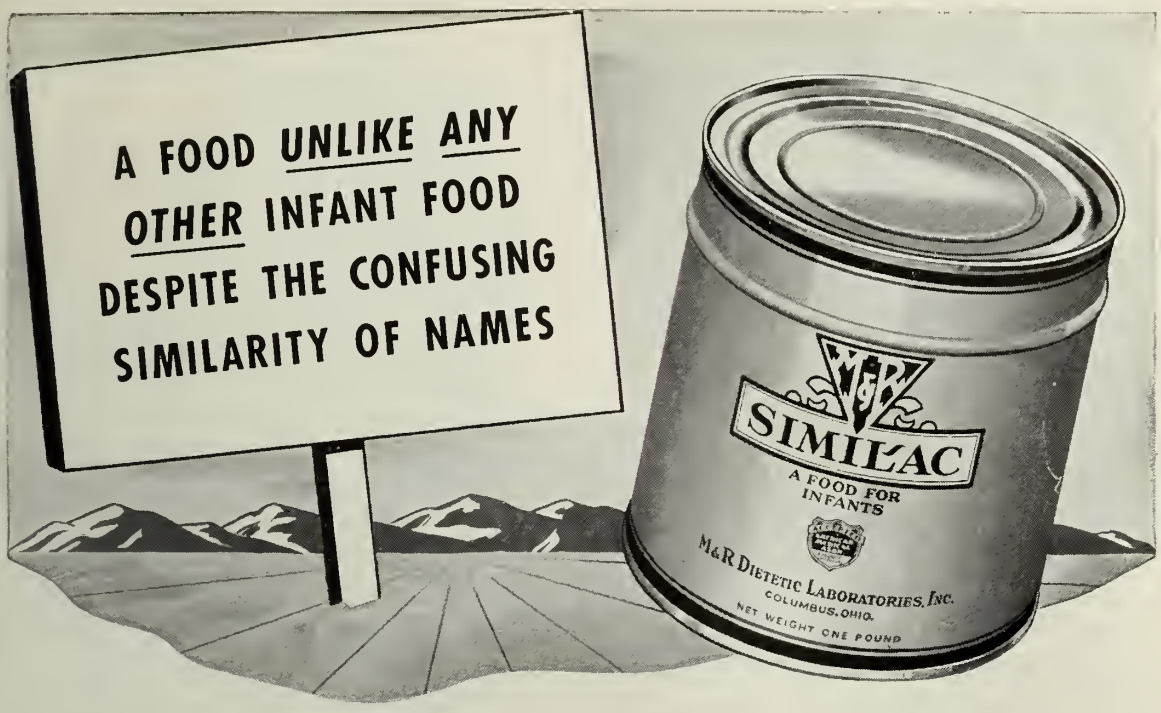


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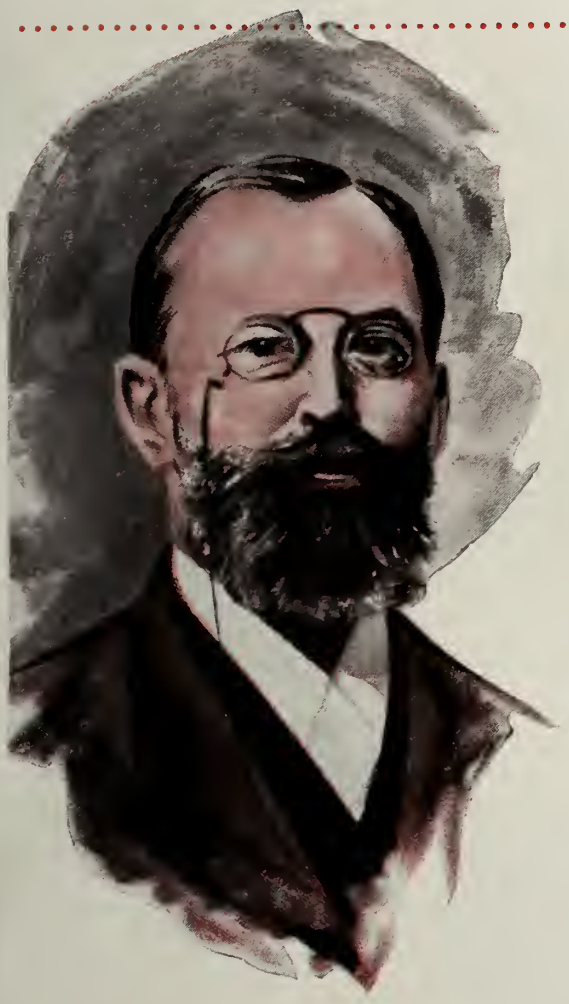
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*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.

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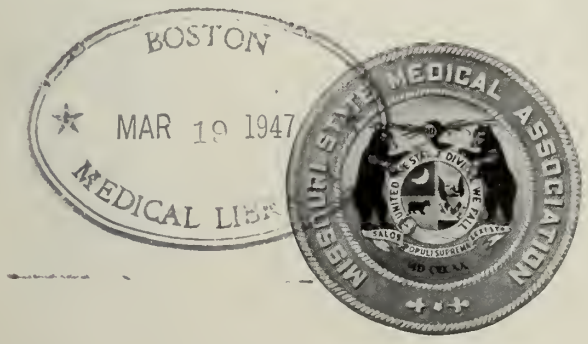
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ORIGINAL ARTICLES

Dissolution of Staghorn Calculus in Kidney Pelvis by Intermittent Irrigation With Solution "G"

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EDITORIALS

Annual Session

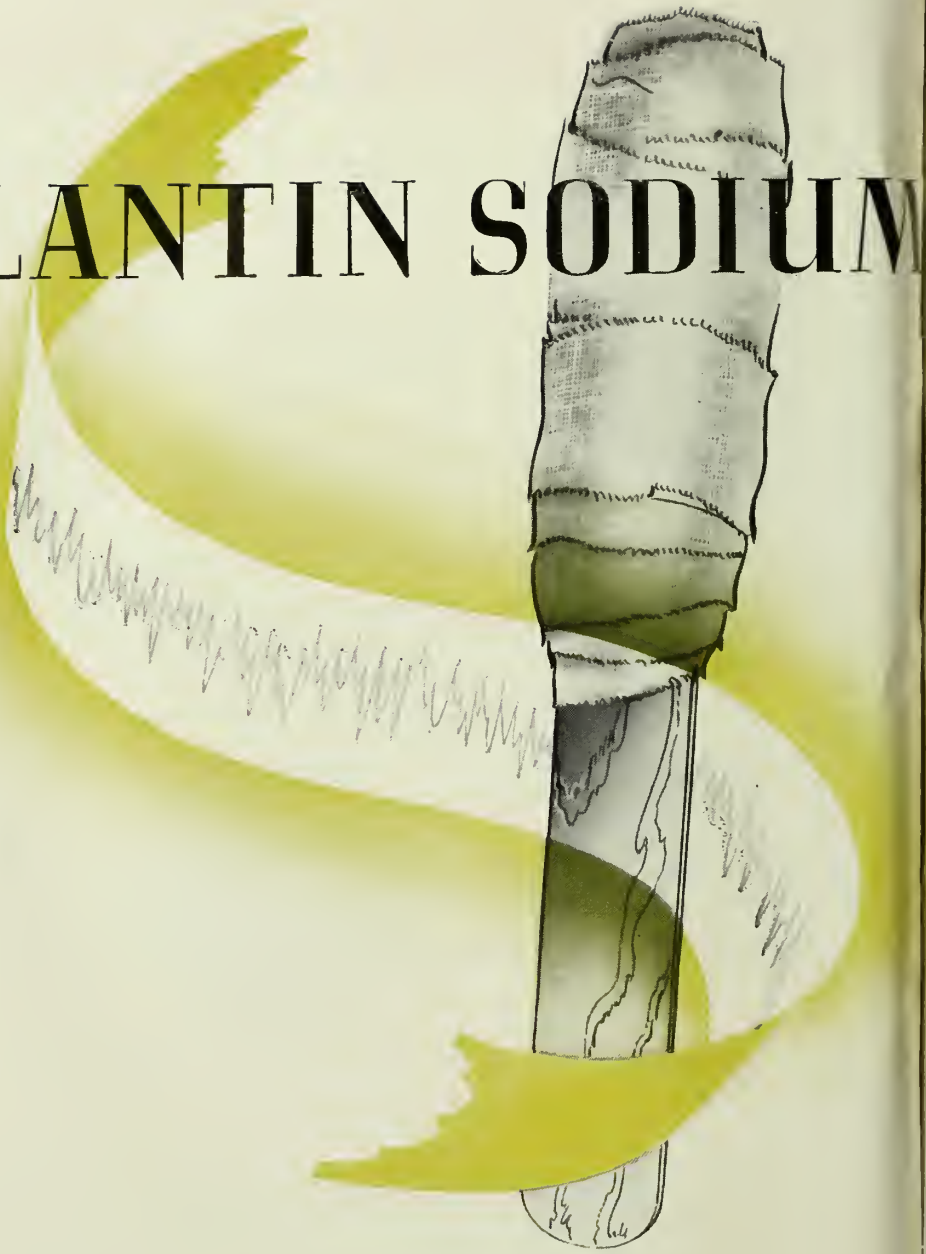
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(Contents Index Page 165)

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CONTENTS

Dissolution of Staghorn Calculus in Kidney Pelvis by Intermittent Irrigation With Solution "G." Justin J. Cardonnier, M.D., St. Louis 179

Ear Canal Infection. O. Jason Dixon, M.D., Kansas City, Mo. 181

Case Report of Barnes Hospital. Robert J. Glaser, M.D., St. Louis 184

Abstracts and Digests—

Spread of Tuberculosis in Families of Tuberculous Patients 194

Book Reviews 196, 202, 205

Editorials—

Annual Session 199
Provisional Mortality and Natality Date for 1946 199

News Notes 199

Deaths 200

Miscellany—

Program on the Diseases of the Chest 200
Cancer Clinics at the Ellis Fischel State Cancer Hospital 200

Society Proceedings 200

Woman's Auxiliary 205

Organization Activities—

Time and Place of Meetings 206
Scientific Program of General Meetings 206
Banquet in Honor of Past President 208
Motion Pictures 210
Scientific Exhibits 210
Delegates 210
Technical Exhibits 216

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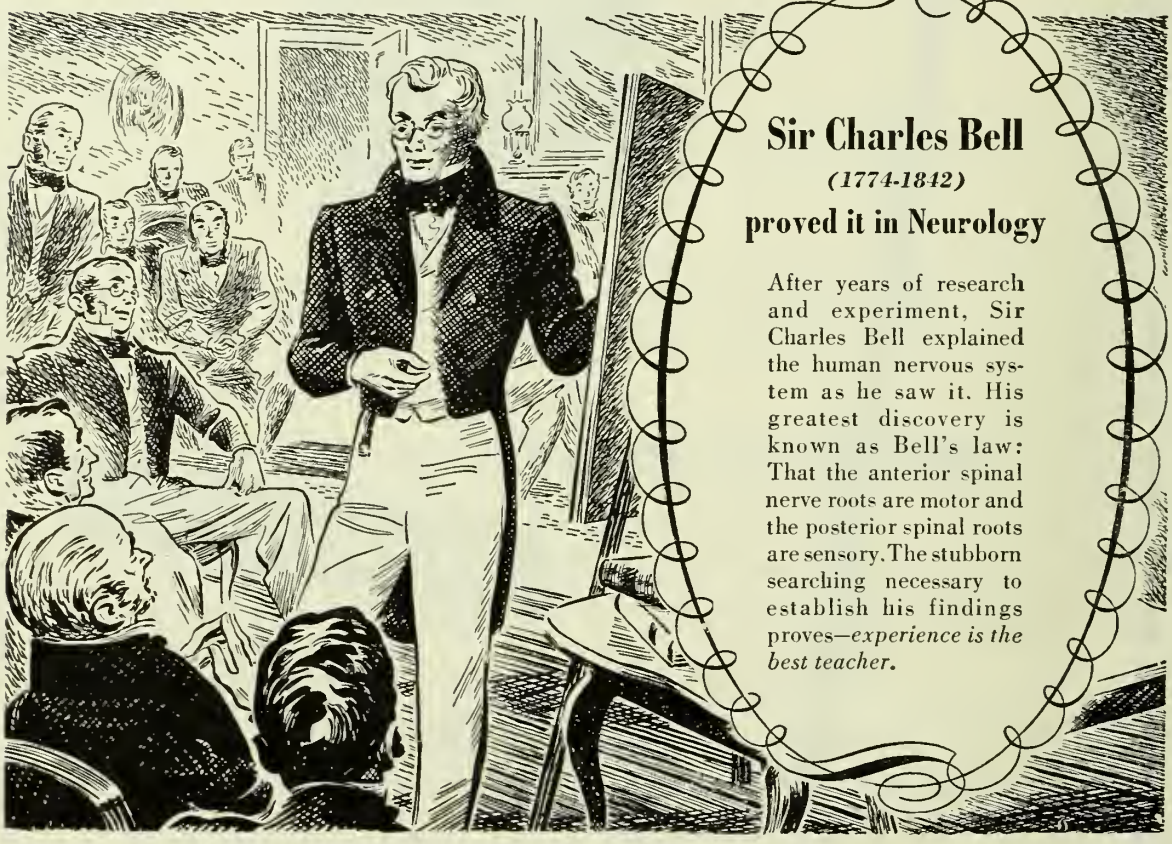
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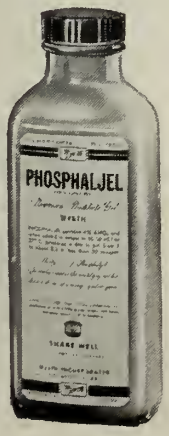
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DISSOLUTION OF STAGHORN CALCULUS IN KIDNEY PELVIS BY INTERMITTENT IRRIGATION WITH SOLUTION "G"

JUSTIN J. CORDONNIER, M.D.
ST. LOUIS

It is not the purpose of this discussion to offer the procedure described as a substitute for sound surgical principles in the treatment of renal calculosis. Solution "G" is irritating, not well tolerated when used for any great length of time, and its use undoubtedly is followed by some degree of permanent renal damage. However, there are certain circumstances in which surgery is not possible and an attempt at stone dissolution is indicated.

In 1932, Randall recommended the use of 1 per cent phosphoric acid in the renal pelvis for the prevention of stone recurrence following surgery and suggested that it also might be of value in dissolving small renal calculi. At about the same time, Higgins suggested the use of a high vitamine A, acid-ash diet, and reported the disappearance of small calculi in eighteen cases, also decrease in the size of a large staghorn calculus in one. Various dissolving agents have been tried, particularly by Keyser, but results obtained were inconclusive.

In 1939, Albright and his associates presented citric acid solution for use in dissolving stones composed of calcium phosphate, calcium carbonate and magnesium ammonium phosphate. Effectiveness of this solution depends on the chemical combination of calcium and citrate to form a more soluble calcium citrate ion, thereby reducing the number of free calcium ions in solution. Later, Suby, in conjunction with Albright, found that the addition of magnesium oxide to citric acid produced a solution which was equally effective and considerably less irritating—hence, Solution "G," which has been widely used in recent years. This solution is a combination of citric acid, magnesium oxide and sodium carbonate in water.

From the Barnes Hospital, St. Louis.
Assistant Professor of Clinical Genito-Urinary Surgery at Washington University School of Medicine, St. Louis.

Hamer and Mertz reported dissolving multiple unilateral renal calculi in one case, using Solution "G" administered with a hand syringe through a single ureteral catheter. Time required was two months and a catheter was maintained in the ureter for the entire period. It is my belief that the prolonged use of an indwelling ureteral catheter is distinctly harmful and apt to lead to serious fibrous changes of a permanent nature.

REPORT OF CASE

Case Presentation: White female, aged 26, had had multiple renal calculi removed from the right kidney in 1942. In 1944, a staghorn calculus was removed from the left kidney. She remained symptom free until early 1946 when she began to have intermittent attacks of left renal colic, accompanied by chills and fever.

She was admitted to Barnes Hospital on June 10, 1946.



Fig. 1.



Fig. 2.



Fig. 3.

General physical examination was essentially normal. Laboratory results were as follows: serum calcium, 11.2 mgs.; phosporus, 3.9 mgs.; nonprotein nitrogen, 16 mgs.; urine calcium, 83 mgs. in 24 hours; microscopic urine, many white blood cells, organisms, bacilli and cocci. Plain film revealed a staghorn calculus in the left kidney (fig. 1). I.V. urograms showed deformity of the right kidney pelvis, moderate left hydronephrosis and hydroureter, with a fair concentration of dye on both sides (fig. 2). Retrograde studies revealed infection on both sides with a phenolsulphonphthalein excretion of 5 per cent on each side in ten minutes.

In view of the technical difficulty of a second operation on the left side, and the relatively poor condition of the right kidney, it was felt that dissolution of the left renal calculus should be attempted. The patient was found to be extremely sensitive to penicillin. Infection was controlled partially by the intermittent use of sulfonamides throughout the entire course of treatment. The ureter was dilated under pentothal anesthesia, and



Fig. 4.



Fig. 5.

two number 6 F. catheters were passed to the kidney pelvis and left in place. Continuous irrigation with Solution "G" was instituted, running the solution in through one catheter and draining it away through the other. In this way, the stone was continuously bathed in the solution without producing any great increase in intrapelvic pressure. At the end of thirty-six hours, the patient developed severe renal colic, gross hematuria and fever, and irrigations were discontinued. She then was placed on an acidification regime, using ammonium chloride, for a period of two months.

After this period, she returned for further treatment. It was felt that the stone appeared less dense than on the previous admission (fig. 3). The same procedure was followed as before, and irrigations with Solution "G" were maintained for 120 hours, when pain, fever and gross hematuria again prevented further treatment. At this time, a great deal of the stone was found to have disappeared with only three shadows remaining, two in minor calices and one small one in the pelvis (fig. 4).

She was again discharged on an acidification regime, and returned after one month, at which time the shadow in the pelvis was found to have disappeared, and those in the minor calices were considerably reduced in size (fig. 5).

SUMMARY

A case in which a staghorn calculus has disappeared almost completely after intermittent irrigation with Solution "G" is presented.

The use of two catheters in the ureter is suggested as a method for maintaining the solution in continuous contact with all parts of the stone, while avoiding any marked increase in intrarenal pressure.

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EAR CANAL INFECTIONS

O. JASON DIXON, M.D.
KANSAS CITY, MISSOURI

Ear canal infections account for a large percentage of distressing ear symptoms which eventually bring the patient to the otologist for relief. Since pain is the principal complaint, often it is confused by the patient with a more serious ear complication, namely, mastoiditis.

These infections within the ear canal may extend from the surface of the ear drum outward to and over the cartilaginous portion of the ear. The ear drum is the dividing barrier between the external ear and the middle ear, and it should be kept in mind that this discussion deals only with infections adjacent to, but entirely external to, the ear drum.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis may at times be extremely difficult. The swelling and pain, with anterior displacement and postauricular edema, may strongly suggest an underlying mastoid infection with postauricular periostitis. Also, the swelling in the ear canal may be so extensive that it obscures the view of the ear drum.

In external ear canal infections, the pain is more severe, more constant, and is usually more disturbing to the patient than in middle ear infections. The external ear canal and, frequently, the entire side of the head is so sensitive that the patient protects it against all forms of trauma. The pain is worse at night when the patient reclines. The pain is increased by the direct or indirect application of heat or any type of external pressure.

ETIOLOGY

External otitis occurs more frequently during the summer months. Swimming, in any kind of water, ranks as the number one cause. Second is trauma, and this is most frequently caused by the patient scratching his ear or, in children, by the insertion of irritating foreign bodies. These causes frequently are associated with a primary fungus infection which, in turn, is followed by a secondary infection involving the secretory ducts, which perforate the canal.

Recently, I have seen a considerable number of returned veterans with fungus infections in the external ear canals, which were acquired while they were in the tropics. Only when these fungus infections became complicated by secondary infections did these persons seek relief.

Since fungi thrive in warm moist areas, the auditory canal and the irregular surfaces of the ear become an ideal habitat for these parasites.

Among other causes are allergic manifestations and various foreign bodies. I now have under my care a very infectious case in a 60 year old woman whose external otitis was proven to be caused by chicken feathers. Although she had always slept on a chicken feather pillow and had been around chickens all of her life, yet, for some unknown reason, she suddenly became sensitized to these feathers. She demonstrated it by an extremely painful and extensive external otitis which responded to no type of treatment until the cause was determined and removed.

SYMPTOMS

The primary symptom which predisposes to trauma is intense itching. This symptom is not only aggravated by attempts to relieve it, but the tissue and ear canal are injured by this trauma and secondary infection, with accompanying inflammation, results.

The cartilaginous external ear canal is made like a funnel with the tip fitting tightly into a bony ring. This firmly fixed bone border does not permit any external swelling of the cartilaginous ear ca-

nal when infection takes place within it. Therefore, this inflammatory reaction is accompanied by an internal swelling, which causes a buckling of the cartilage, and is extremely painful.

When this infection is so extensive that it completely surrounds the cartilaginous ring, then there is no room for expansion due to this inflammatory reaction and the pain becomes so intense that opiates are required to control it. Unfortunately, this localized swelling within the canal, due to the previously mentioned buckling, when seen early in the disease, may be misinterpreted as the point of a localized abscess and, accordingly, incised. This misdirected surgical procedure traumatizes an already acutely inflamed tissue and predisposes to secondary infection at the site of incision. Such misdirected surgical endeavors, if repeated, may be followed by an extensive cellulitis of the head and neck, and erysipelas.

REMOVAL OF FOREIGN BODIES

Foreign bodies, such as stones, cherry seeds[1] and other hard substances, which have been inserted into the external ear canal may, in the process of their removal, produce so much trauma that a severe secondary ear infection follows. This is especially apt to occur when repeated attempts have been made to remove the foreign body.

Most of this trouble follows the awkward and forceful attempts made by someone who is neither equipped nor familiar with the removal of foreign bodies from the external ear canal and, by his efforts, may force the foreign body deeper into the canal.

In one instance, I was obliged to remove a small piece of gravel which the child had picked from the stucco of her house and which had been forcibly pushed into the middle ear through the ear drum. This necessitated a postauricular incision and the removal of bone about the external surface of the mastoid process. Subsequently, this middle ear infection extended into the mastoid cells and a complete mastoidectomy was required.

No more painful and disturbing ear complication ever occurs than the entrance of an insect into the external auditory canal. Unless one has experienced this agonizing sensation, he is unable to understand the painful terror which is inflicted.

Attempts by the patient to remove this foreign body only aggravates the condition because it forces the insect inward and, by its own attempts to escape, crawls upon the sensitive drum. The magnified sounds of this claw-like scratching upon the vibrating drum, together with the fluttering of wings and the painful lacerations by the sharp claws, renders even an adult patient almost unmanageable. Children should be held forcibly, and any nonirritating liquid at hand, such as soda pop, milk or syrup, poured into the ear canal. This liquid either drowns the insect or forces its exit. Such irritating solutions as chloroform, ether, alcohol or strong antiseptic liquids should be avoided.

I find in the more modern and better informed communities that the mother or some other excited member of the family dashes to the telephone and calls the doctor while the child runs screaming about the yard, attempting to force his finger into the ear canal, which increases the activity of the irritating insect. Obviously, ear wax is secreted principally to entangle the insect before he reaches the sensitive drum and it is not uncommon to find these insects imbedded in dry cerumen.

Also, if the bug is killed or is not seen to escape, no effort should be made by the laymen to remove it immediately. What the patient demands is immediate relief from the pain produced by the increased motility of the trapped insect. The presence of the dead insect does no immediate harm and can be removed easily in the otologist's office with gentle irrigations and proper equipment.

OTHER UNUSUAL CAUSES

Another source of external ear canal infection is middle ear and mastoid suppuration. Usually, this dual infection does not occur and, when it is present, irritating medication, such as alcohol or strong phenol in glycerine, with repeated washings and irrigations of the ear canal, and futile attempts to treat and reach the source of the infection within the mastoid process brings about this secondary ear canal infection.

When this occurs, it presents a confusing arrangement of signs and symptoms and, should the swelling of the ear canal block the drainage, rapid extension within the mastoid process usually takes place and necessitates mastoid exploration and drainage. Discontinuation of the cause of the condition usually brings about prompt relief.

Osteomyelitis of the mastoid process, with accompanying periostitis and periosteal abscess, may burrow beneath this cartilaginous canal ring and produce the same signs and symptoms as those which occur postauricularly. This abscess may erode spontaneously through the cartilaginous ring and develop a fistulous tract. Postauricular edema may subside when this drainage is established and, unless carefully studied, the true pathologic process is undetermined. Also, this mastoid infection may set up only a low grade localized inflammation about the periosteum, which is followed by an increased deposit of bone, resulting in an obstructive osteoma within the ear canal.

VIRUS INFECTIONS

Infections which are misunderstood frequently are classed as virus infections. The external ear canal is also susceptible to these atypical attacks, which originate primarily within the middle ear. They have a sudden onset with pain as the principal symptom. Due to the formation of blebs, which occur upon the drum, this pain is often most agonizing and causes undue anxiety on the part of the patient. The pain is most intense while the bleb is forming upon the ear drum, and after this bleb formation is completed, the pain completely

subsides. These blebs often extend out along the ear canal. If the drum is examined during the formation of the bleb, and when the pain is intense, it will very likely be misinterpreted as a localized bulging of the drum and a misdirected paracentesis performed.

Momentarily, this will relieve the pain, but it has the bad effect of carrying the infection through the wounded drum into the middle ear, which is already filled with an inflammatory exudate. Secondary infection ensues. Suppuration, which would not have otherwise occurred, takes place, and the true cause of this complication is rarely recognized by all concerned.

This type of external ear infection is usually self diagnostic. The anxious mother calls to say that her child, who left for school with only a running nose and a slight cold, has suddenly been sent home, screaming with ear pain. By the time the child is seen by the physician, he is asleep, having been exhausted by this experience, which has suddenly and spontaneously relieved itself without drainage.

In the adult, the diagnosis can be reached by a similar procedure. The anxious husband telephones to say that his wife has just called him home because of a sudden and violent pain in her ear, which is unbearable. By the time they reach the doctor's office, she is completely relieved, and they are embarrassed with explanations.

The bleb on the ear drum, which has completed its process of formation, reveals the cause.

TREATMENT

The treatment lies first in the prevention of the complication. Self imposed trauma with foreign bodies is an obvious menace. The patient with itching ears should seek relief before secondary infection occurs. Suspected foreign bodies and excessive cerumen should be removed by the otologist, who is equipped to do so.

External otitis is one of the hazards of swimming and should be accepted as such. No type of medication should be put in the ear canal externally by the patient, and no form of irrigation or washing should be used. This includes wash rags, vigorously applied by mothers, and fingers of men when they shave. Ear wax is a normal protective mechanism, which, if allowed to dry, flakes and spontaneously falls out of the ear. The ducts which secrete this wax are easily blocked and traumatized. This dry cerumen may act as an irritant, which causes itching and, subsequently, trauma is produced by scratching.

Unfortunately, this trauma produced by scratching increases the irritation and itching and tends to obstruct the secretory ducts. Except for the removal of impacted cerumen, aqueous irrigations should never be used.

Fungus infections, with or without associated secondary infections, should be treated by the application of cotton tampons saturated with 2 per cent salicylic acid in 70 per cent alcohol. This causes an intense burning in the ear at the time of application, which is relieved by blowing air continuously and forcefully directly into the ear canal. This also dries the ear canal. Immediately following this, flexible collodion is applied directly over the entire ear canal and dried by blowing air directly upon it. The ether solvent in the collodion acts as an antiseptic and the remaining film of collodion protects the small fissures within the underlying skin, preventing external irritation and diminishing the intense itching. Healing takes place beneath this sterile dressing, which is slightly flexible and nonirritating. This treatment should be repeated daily for about one week because it is quite difficult to reach, by one application, all of the areas which the fungus and accompanying infection have invaded. Should this medication reach and cover the ear drum, no harmful result takes place.

After three or four applications, intense itching will reoccur. This may be relieved by the removal of the castlike tube of dry collodion which should be entirely painless if picked up carefully under direct observation with small thumb forceps. The forceful insertion of an ear speculum, or any form of trauma, must be avoided. No irrigation should be used and no ointment should be applied. Under no circumstances should the patient be allowed to apply local medication himself because, if he does, he will use this form of treatment as an excuse for scratching his ear and repeating the trauma.

The patient should be cautioned against every form of trauma. This includes rubbing his head on the pillow or the back of the chair, forcefully moving his external ears, or touching any part of his ear with his hands or any foreign body.

Application of direct or indirect heat increases the congestion, which of course, increases the pain. The application of cold involves a certain type of trauma but it may be satisfactory, when pain is intense, by applying a cold rubber ice ring about the external ear. Sedatives should be used if the pain is severe. It should be explained to the patient that the pain is actually worse at night, due to his reclining position and, possibly, due to the absence of sympathetic associates. The patient should be advised to nap during the day in an upright position and, if pain is severe, to sleep in a like manner at night.

The cause and duration of the pain should be thoroughly explained to all parents and adult patients. Since practically all patients associate ear pain with mastoid disease, they should be relieved of their anxiety. If they thoroughly understand the cause of this violent disturbance, and are properly assured that they eventually will obtain relief, their anxiety is greatly diminished.

Professional Building.

1. Dixon, O. Jason: A New Method for the Removal of Foreign Bodies in the External Auditory Canal, J. A. M. A. 83:357 (August 2) 1924.

CASE REPORT OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCE AT THE BARNES HOSPITAL, ST. LOUIS

ROBERT J. GLASER, M.D., Editor

CASE 92

PRESENTATION OF CASE

The patient, H. K., a 49 year old traveling salesman, entered Barnes Hospital for the first time on August 21, 1945, complaining of fatigue and loss of weight. The family history was noncontributory. The patient apparently had been in excellent general health. At the age of 30 he had had a renal stone; three years later he severely bruised his left chest in an automobile accident; four years before entry, he had bronchitis; from all of these he recovered promptly without known sequelae. The patient worked as a traveling salesman. Aside from excessive smoking, his habits were good. His average weight was 175 pounds.

About six months prior to admission the patient began to feel fatigued and soon thereafter his appetite failed. These symptoms persisted and he lost about 15 pounds in weight. About one month before admission he noted a sharp pain in the left axilla, aggravated by deep breathing as well as by a hacking nonproductive cough which began concomitantly. The patient noted temperature elevations to 101 F. The pain disappeared after three days but the cough persisted. His appetite and strength improved somewhat, but the weight loss continued and two days before admission the chest pain recurred. The patient was referred to the Barnes Hospital for study.

At the time of entry, his temperature was 37.6 C., pulse 88, respirations 20, and blood pressure 120/75. There was slight dulness over the left upper chest anteriorly, but no râles were heard, and the breath sounds were recorded as normal. Elsewhere the lungs were clear. The remainder of the physical examination was entirely negative.

The laboratory studies were as follow: Blood count: red cells, 4,030,000; hemoglobin, 11.2 gms.; white cells, 12,000; differential count: eosinophils, 4 per cent; stab forms, 5 per cent; segmented forms, 61 per cent; lymphocytes, 24 per cent; monocytes, 6 per cent. Urinalysis: negative. Stool examination: negative. Kahn reaction: negative. Corrected sedimentation rate: 1.9 mm. per minute. Ziehl-Neelson stain of sputum: many acid fast bacilli seen. Guinea pig inoculation (gastric washings): animal died and was found to have tuberculosis in most of the viscera. Roentgenogram of the chest (figure 1): "The cardiac silhouette and aorta are within normal limits. The hilus shadows are quite prominent, particularly on the left side. There is diffuse, patchy, flocculent infiltration in the circle of the first rib and the first, second and third anterior interspaces on the left side. The involvement is greatest in the medial two thirds of the lung. Overlying the third rib anteriorly and in the third anterior interspace are two, perhaps three, areas of radiolucency, in one of which a fluid level is seen which suggests cavity formation (arrows). This has the appearance of active pulmonary tuberculosis. In the circle of the first rib and first and second anterior interspaces on the right side are small areas of calcification. The appearance is that of quiescent pulmonary tuberculosis. The lung markings in the lower portions of both lung fields are somewhat coarse. There is a small amount of fluid in the base of the left pleural cavity and a small amount of air is seen in the pleural cavity partially collapsing the lung. There appear to be adhesions at the left base. Roentgen ray diagnosis: pulmonary tuberculosis, left, with cavitation; hydropneumothorax, left."

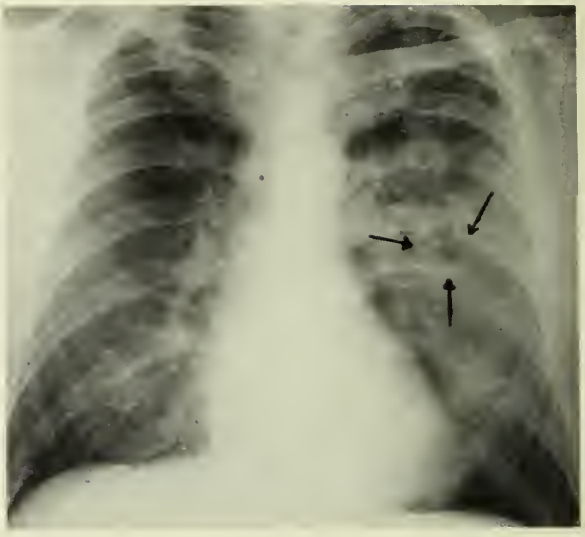


Fig. 1.

Pneumothorax was induced on the left side and repeated several times but was only partially successful in collapsing the lung. Repeated roentgenograms of the chest remained essentially unchanged except that they showed slight collapse of the left lung. Adhesions at the left apex and base were apparent on the films. During the patient's hospital stay, the temperature averaged between 37 and 37.5 C.; repeated blood counts revealed no anemia, and repeated sputum examinations showed many acid fast organisms. The patient was discharged on October 24, 1945, to continue convalescence at home.

Following discharge, the patient remained in bed but continued to feel tired; his appetite failed to improve and he thought that he had lost more weight. Two weeks before his second admission, he began to have a troublesome cough which became productive of blood. On January 31, 1946, he again was admitted to the hospital for re-evaluation of his condition.

On physical examination, the patient's temperature was 37 C., pulse 92, respirations 18, and blood pressure 150/99. The patient appeared chronically ill and somewhat depressed. He coughed occasionally, and produced mucopurulent sputum tinged

with blood. His respirations were not labored. Examination of the upper respiratory tract was normal. The trachea was in the midline. Impaired expansion, dulness, suppressed breath sounds and suppressed voice sounds were noted over the left upper lobe anteriorly. Over this area and to a lesser extent, over the right apex, post-tussic râles were heard. A soft systolic murmur was audible to the right of the sternum in the fourth interspace. The abdomen was quite tender in the right upper quadrant, but no organs or masses were palpated. The extremities were normal.

Laboratory studies were as follow: Blood count: red cells, 4,280,000; hemoglobin, 13.0 gms.; white cells, 9,900; differential count: stab forms, 3 per cent; segmented forms, 77 per cent; lymphocytes, 19 per cent; monocytes, 1 per cent. Urinalysis: negative. Stool examination: negative. Blood Kahn reaction: negative. Ziehl-Neelson stain of sputum: positive for acid fast bacilli. Corrected sedimentation rate: 1.4 mm. per minute. Roentgenogram of the chest: "There are small flecks of calcification and some fibrosis in the circle of the first rib and the first anterior interspace on both sides. In addition there is soft parenchymatous infiltration overlying the second rib anteriorly on the left and extending down into the third anterior interspace. A somewhat rounded area that has a radiolucent center appears in the third anterior interspace; it is suggestive of a cavity. No fluid level is evident. Roentgen ray diagnosis: pulmonary tuberculosis."

A pneumothorax was again attempted on the left side, but the lung could not be collapsed. Following a surgical consultation it was decided to do a thoracoplasty after the patient had had further bed rest at home. He left the hospital on February 5, 1946.

During the next two and a half months, the patient remained in bed at home and was at first fairly comfortable; he had no fever, his appetite improved and he held his weight. He soon, however, developed persistent hoarseness and ten days prior to his last admission, he began to feel poorly again. He noted an elevation of temperature in the afternoons to 100 F, and a few days later had the onset of daily severe shaking chills, followed by profuse sweats. A moderately severe cough, productive of blood-streaked sputum, continued. The patient lost about 8 pounds. He was readmitted on April 25, 1946.

At the time of entry, the patient's temperature was 36 C., pulse 120, respirations 20, and blood pressure 110/60. The patient appeared chronically ill; he coughed occasionally producing white blood-flecked sputum. His voice was somewhat hoarse. The significant physical findings otherwise were confined to the pharynx and thorax. The left vocal cord was fixed in the cadaveric position but no tumor or ulceration was apparent. There was slight atrophy of the muscles of the left anterior chest, and expansion was somewhat limited on that side. Over the left upper lobe, anteriorly and posteriorly,

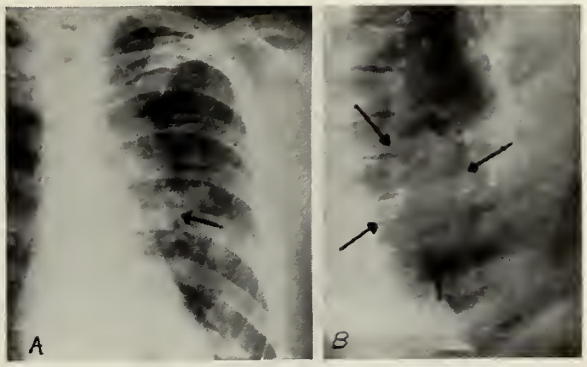


Fig. 2.

moderate dulness to percussion, markedly diminished breath sounds and voice sounds, and decreased tactile fremitus were noted. A few moist inspiratory râles, persistent after cough, were heard over the left upper lobe; a lesser number were heard over the right upper lobe.

The laboratory studies included the following: Blood count: red cells, 4,320,000; hemoglobin, 11.9 gms.; white cells, 16,950; differential count: eosinophils, 4 per cent; stab forms, 14 per cent; segmented forms, 58 per cent; lymphocytes, 21 per cent; monocytes, 3 per cent. Urinalysis: negative. Stool examination: negative. Blood Kahn reaction: negative. Ziehl-Neelson stain of sputum: positive for acid fast bacilli. Electrocardiogram: within normal limits. Roentgenogram of the chest: "At this examination, in the posterior-anterior view (figure 2A), the cardiac silhouette and aorta remain within normal limits. A soft tissue shadow extends out from the mediastinum at the level of the first rib anteriorly to the level of the third rib anteriorly on the left side. It extends out into the lung field for a distance of about 3 cms. (arrows). The margins of this tumefaction are well demarcated and appear to be smooth. In the left lateral view of the chest (figure 2B) the soft tissue mass is seen to lie adjacent to the posterior portion of the aortic arch (arrows). While the nature of the mass cannot be determined from the roentgen ray films, the rapidity of its growth suggests that it represents a tumor of the mediastinum. It may be a tuberculous lymph node or may be of neoplastic origin. There is a possibility that it represents an aneurysm of the aorta although, because of the appearance of the aorta, this is not probable. The tuberculous process in the left lung again is well visualized. There has been some regression in the amount of infiltration in the third and fourth anterior interspaces. The areas of cavitation are not well visualized at this time. There is no evidence of air in the left pleural cavity. There is some haziness over the left costophrenic angle suggestive of thickened pleura. The right lung has shown no alteration in its appearance. Roentgen ray diagnosis: pulmonary tuberculosis; mediastinal mass, (?) tumor, (?) aneurysm."

Soon after admission, a bronchoscopy was per-

formed. Acute reddening of the left stem bronchus and one distinct ulceration of the wall of that bronchus, typically tuberculous, were seen. The bronchus seemed pushed in to some extent. No definite tumor mass was visualized. A biopsy was taken of the lesion. A microscopic section of the biopsy material was described as showing necrotic cellular structures which could not be identified. Following bronchoscopy the patient continued to bring up varying amounts of bloody sputum, occasionally up to 500 cc.; there was a persistent afternoon temperature of 38 C. or higher, associated with chilly sensations or with frank chills. Repeated blood cultures were sterile. The left phrenic nerve was crushed but this measure was of little effect in controlling the hemoptysis. A pneumoperitoneum was then performed and 700 cc. of air were introduced. The pulmonary signs did not change significantly. Pneumoperitoneum was continued about every four days with little favorable effect. The patient was supported with transfusions, but the red blood count fell to 3,600,000 and the hemoglobin to 9.8 gms.

On May 30, 1946, the patient had a massive hemoptysis and expired.

CLINICAL DISCUSSION

Dr. Harry L. Alexander: This patient is said to have been essentially well when he was 49 years of age. He then contracted tuberculosis and one year later he died. It would be of interest to attempt to trace the course of the infection in this man. If we are to do so, the first question to be asked is: When did he contract the disease? Was it a recrudescence of an old infection or did he develop tuberculosis for the first time at the age of 49 which progressed so rapidly as to cause his death in a relatively short period of time. Dr. Harford, would you state your opinion on this question?

Dr. Carl G. Harford: The tuberculosis was more likely a re-infection, since in a first infection there is usually a minimal lesion in the lung parenchyma whereas the hilar lymph nodes are extensively involved. This man's lesion was in the lung parenchyma. It could represent re-infection from an exogenous or endogenous source.

Dr. Alexander: You mentioned one of the distinguishing features between so-called childhood tuberculosis and the adult type. Are there other features?

Dr. I. Jerome Flance: The primary infection or so-called childhood type of tuberculosis is usually symptomless.

Dr. Alexander: It has been said that in the childhood type there is more caseation and less fibrosis than in the adult type. Do you agree?

Dr. Flance: I think that the type of pathologic process depends on the virulence of the infecting organism and the natural or acquired immunity of the patient.

Dr. Alexander: Given one hundred cases of the childhood and adult types of tuberculosis, Dr. Goldman, would you feel that they both might present the same type of pathologic picture?

Dr. Alfred Goldman: No, I would not think so. The childhood type of active tuberculosis is characterized by lympho-hematogenous spread; such a child has not had the disease before and thus has not developed the immunity or allergy to tuberculosis. It is very uncommon to see, for example, chronic tuberculosis in children associated with a primary infection. If such children develop active tuberculosis, their course is usually progressive and fulminating. In the reinfection type, which usually occurs in adults who have developed allergy or immunity, the process assumes a proliferative and exudative character. This is the form in which cavitation is seen. The present case, I believe, is an example of the latter type.

Dr. Alexander: In regard to location, in first infection tuberculosis, the process may occur anywhere in the lung; in the adult type the lesion almost always is found in the upper lobes. Do you believe that the reason adults do not respond so violently is explained by a previous infection and resultant immunity?

Dr. Goldman: Yes, I do.

Dr. Alexander: Why is it then, that if immunity develops in an adult as a result of a first infection, there are more deaths from tuberculosis in the adult. Are other factors besides immunity concerned?

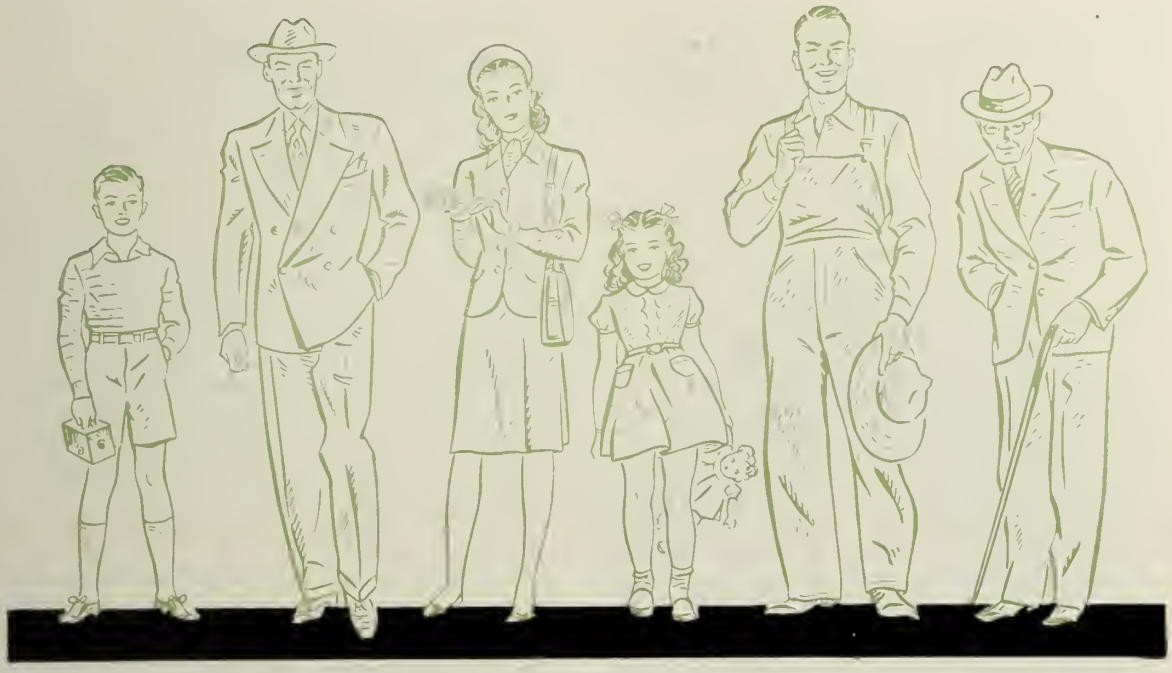
Dr. Goldman: Yes, there are; however, the severity of the infection is certainly of great importance. For example, in a young child with no immunity a very severe infection may rapidly progress to a fatal termination. Age *per se* is an important factor, for the incidence of tuberculosis varies strikingly in different age groups.

Dr. Alexander: What is happening to the incidence of tuberculosis in this country?

Dr. Virgil C. Scott: Before the war it was on a decline. I do not know what effect the war had, if any, on the incidence.

Dr. Alexander: The patient whom we are discussing today had minimal lesions in his right apex which indicated re-infection. Presumably something happened to his immunity and his infection progressed. Dr. Goldman, throughout the course of this patient's illness, you were very eager to collapse his lung. Pneumothorax was performed but was not particularly successful; phrenic crush and pneumoperitoneum were done, and even thoracoplasty was discussed. Why were you so desirous of achieving the collapse?

Dr. Goldman: This patient obviously had chronic tuberculosis with cavitation. He was kept on bed rest at home for a few weeks and during that time his temperature, which never was very high, was minimal and fell almost to normal. In any case of chronic fibrotic tuberculosis with cavitation, limited to one side, it is very desirable to attempt to collapse the cavity. A cavity such as this patient had is not very apt to heal by itself and to accomplish such healing would require many years of



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bed rest. The simplest measure and the one that should be tried first is artificial pneumothorax.

Dr. Alexander: That was unsuccessful because of adhesions. How successfully can pneumothorax be induced when adhesions are present; can the adhesions be separated?

Dr. Goldman: If there are only a few fibrous adhesions which can be seen readily and are in a favorable location (the extreme apex of the lung is a very unfavorable position) they can be severed either by external or internal pneumonolysis. In this case there were apparently many adhesions and a successful and effective pneumothorax was never established.

Dr. Alexander: Had the patient been able to undergo a thoracoplasty, would that procedure have been indicated under these circumstances?

Dr. Goldman: In a case of tuberculosis in which cavitation is limited to one side and pneumothorax is unsuccessful, thoracoplasty should be done; recovery in a fairly large number of cases can be expected.

Dr. Alexander: Is the phrenic crush apt to be successful?

Dr. Goldman: The phrenic crush is not apt to be successful in closing a cavity, but it was done, in association with a pneumoperitoneum, for another reason; namely, because the patient was bleeding uncontrollably. Had he been strong enough to stand a thoracoplasty, it would have been preferable. When a phrenic crush is done in association with a pneumoperitoneum, the diaphragm may be pushed up to the second or third rib anteriorly and hemorrhage can often be successfully controlled. A small number of tuberculosis specialists prefer the procedure to pneumothorax, and in some sanitoria, phrenico-exeresis and pneumoperitoneum are used exclusively.

Dr. Alexander: Apparently the process had progressed until three complications developed; first, uncontrollable hemoptyses; second, hoarseness (on laryngoscopic examination there was paralysis of the left vocal cord); and third, a new mass appeared in the chest roentgenogram. Recently a case was discussed in these conferences in which paralysis of the vocal cord was proven to be due to pulmonary tuberculosis. How frequently is the recurrent laryngeal nerve or the right laryngeal nerve involved in a tuberculosis process?

Dr. Goldman: It is so rare that at the time we saw this patient, we did not think it occurred. Dr. Theodore E. Walsh had seen one case and the group at Koch Hospital had seen one case. Dr. James Good reviewed the subject in the literature and found that a tuberculous node can occasionally involve the recurrent laryngeal nerve and produce paralysis.

Dr. Alexander: We now come to the problem of attempting to determine the nature of the mass which appeared in the chest roentgenogram. Are there any suggestions?

Dr. W. Barry Wood, Jr.: Dr. Goldman has already mentioned one possibility—that the mass might represent tuberculous lymph nodes. I think this suggestion should be considered very seriously.

Dr. Alexander: In view of the foregoing statement that the adult type of tuberculosis does not affect primarily lymph nodes, may nodes be eliminated as the cause of the mass?

Dr. Wood: No, because the lymph nodes are affected by the tuberculous process in both types of tuberculosis. The difference is one of degree.

Dr. Alexander: Are there other suggestions?

Dr. Palmer H. Futcher: May tuberculous empyema occur in that area?

Dr. Goldman: The roentgen ray film certainly is not characteristic of tuberculous empyema. It is conceivable that a localized pocket of pus might arise at that particular site, but I do not think I have ever seen one.

Dr. Edward Massie: What about an aneurysm of the aortic arch?

Dr. Alexander: Dr. Bottom, I believe you considered the mass to be in the middle or posterior mediastinum. Is that correct?

Dr. Donald S. Bottom: Yes.

Dr. Alexander: If an aneurysm were to impinge on the laryngeal nerve, it would have to arise in the descending arch of the aorta. Are aneurysms in this location common? Dr. Scott, would you discuss the location of syphilitic aneurysms on the aortic arch?

Dr. Scott: The common site of aneurysms is the portion of the aorta nearest the aortic valve; progressing distally down the aorta aneurysms become decreasingly frequent. If one takes an arbitrary figure of ten for aneurysms of the ascending arch, one could postulate seven for the transverse arch, three for the descending thoracic portion and one for the abdominal area.

Dr. Massie: I was thinking of a tuberculous abscess involving the aortic wall, giving rise to an aneurysm with terminal rupture.

Dr. Alexander: Are there other suggestions?

Dr. Robert W. Elliott: An ulcer was seen on bronchoscopy. Is it possible that there was a per-

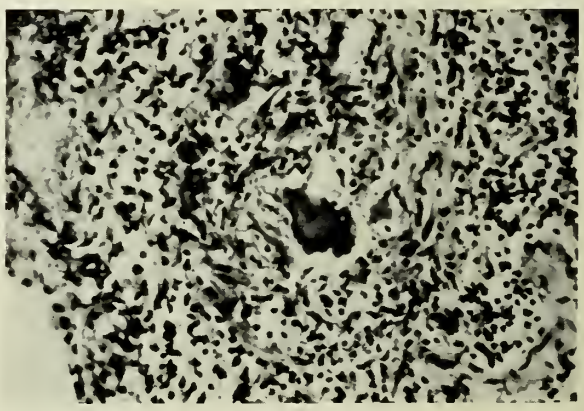
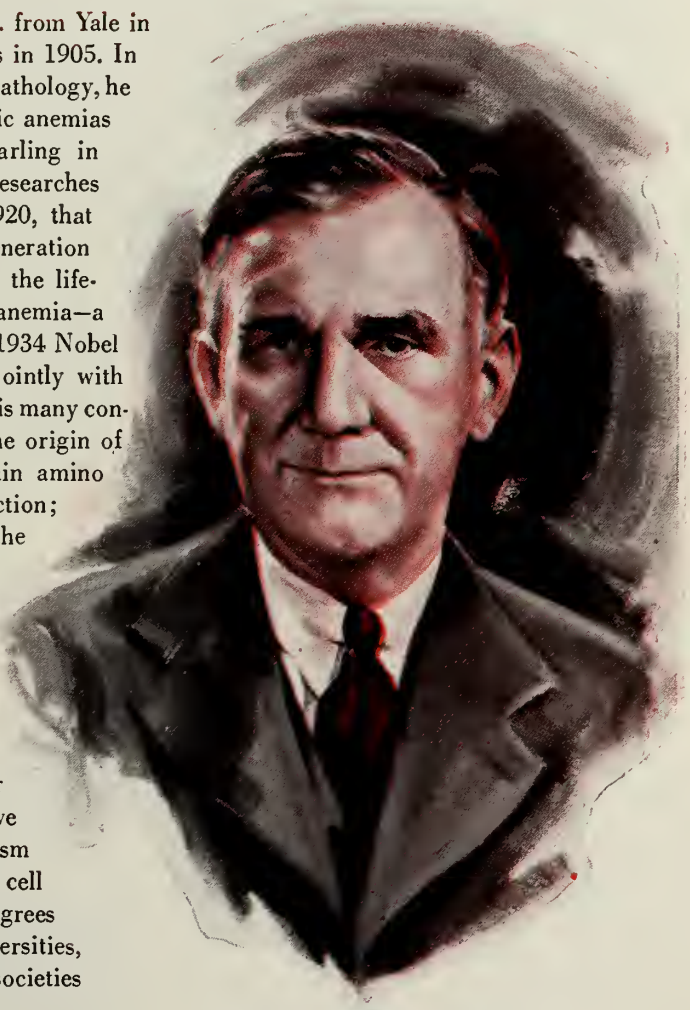


Fig. 3.

Men and Amino Acids

George H. Whipple received his A.B. from Yale in 1900, and M.D. from Johns Hopkins in 1905. In pursuing his bent for investigational pathology, he studied blackwater fever and parasitic anemias under General Gorgas and Dr. Darling in Panama. In 1917, he began extended researches on anemias. The observation, in 1920, that liver was beneficial in blood regeneration paved the way for the revelation of the life-saving value of liver in pernicious anemia—a discovery for which he received the 1934 Nobel Prize in Physiology and Medicine jointly with Doctors Minot and Murphy. Among his many contributions were those dealing with the origin of plasma proteins; the value of certain amino acids in increasing hemoglobin production; the potency of dietary factors in the formation of hemoglobin and plasma proteins; studies on reserve stores of protein-building materials; and the dynamic exchange of protein materials within the body.

Dr. Whipple is recognized as a pioneer in the experimental use of radioactive isotopes in the study of the metabolism of hemoglobin, plasma proteins, and cell proteins. He has received honorary degrees from many American and foreign universities, and numerous honors from scientific societies here and abroad.



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foration, extension into the mediastinum and abscess formation?

Dr. Goldman: The mass was noted before bronchoscopy; that is the reason that the procedure was done.

Dr. Alexander: Dr. Moore, do you have a section of the ulcer?

Dr. Robert A. Moore: Figure 3 shows a characteristic field at the edge of the ulcer. In the center there is a giant cell with peripherally arranged nuclei. About the giant cell there are large cells with numerous lymphocytes and fibroblastic proliferation; this is the typical histologic appearance of a tuberculous lesion and a diagnosis of tuberculous bronchitis was made.

Dr. Alexander: The mass may, therefore, represent tuberculous lymphodenopathy, mediastinal empyema, mediastinal abscess, or an aneurysm due to erosion of the aortic wall by a tuberculous process. Are there other suggestions?

Dr. Goldman: We have seen bronchogenic carcinoma coexist with other lesions.

Dr. Alexander: The hemorrhage was extensive in this case and could have been due to a bronchogenic carcinoma. Bronchogenic carcinoma could likewise account for the laryngeal nerve involvement. What is the association between carcinoma of the bronchus and tuberculosis? Dr. Goldman, can you give us any statistics bearing on this question?

Dr. Goldman: Rokitansky, in the middle of the last century, stated that cancer and tuberculosis were antagonistic. Recently, in 1929, Pearl wrote an article in which he corroborated that point of view. He quoted statistics to prove that the two do not coexist. Since that time, however, many investigators have shown that tuberculosis and bronchogenic carcinoma may coexist, but that the combination is uncommon. Cancer may occur, for example, in a patient who has had old pulmonary tuberculosis and pulmonary tuberculosis may occur in a patient who has cancer. Many cases have been reported, based on postmortem findings, in which patients have died with cancer and some form of pulmonary tuberculosis, usually the fibrocalcific type; occasionally active tuberculosis has been present. Freed wrote an excellent article on this subject. He reported thirteen cases of active pulmonary tuberculosis associated with bronchogenic carcinoma. Analyzing all of the cases, however, very few are found in which both carcinoma and active tuberculosis are present in the same lung. Freed discussed the relationship between the two. He postulated, as others have, that if carcinoma and tuberculosis do occur in the same lung, the carcinoma may have appeared first and in some manner may have led to the reactivation of a dormant tuberculous lesion. There have been cases observed in which carcinoma has been said to have arisen within a tuberculous cavity. Actually, however, the carcinoma must start in a bronchus.

Dr. Alexander: Perhaps Dr. Bottom can help us out on this question. Is the roentgen ray shadow dense enough to represent solid tissue such as a carcinoma involving lymph nodes?

Dr. Bottom: Yes.

Dr. Alexander: Are there further questions?

Visiting Physician: What was the significance of the patient's chills and fever? Could a tuberculous lesion of this type alone, without extension, have produced them?

Dr. Goldman: Chills are not common in tuberculosis.

Dr. John R. Smith: It should be borne in mind that tuberculous pericarditis will change the shape of the cardiac silhouette.

Dr. Alexander: Do you think that the patient may have had tuberculous pericarditis?

Dr. Smith: Possibly.

Dr. Alexander: In summary, I think that it may be said from the foregoing discussion that the consensus of opinion favors a single clinical diagnosis of tuberculosis with extension to the mediastinal lymph nodes.

CLINICAL DIAGNOSIS

Pulmonary tuberculosis; tuberculous lymphadenopathy and mediastinitis.

PATHOLOGIC DISCUSSION

Dr. Robert A. Moore: In figure 4A, a characteristic field from the lung is seen, showing well formed tubercules with central giant cells surrounded by moderately mature epithelioid cells; about them there is a layer of fibrous tissue infiltrated with lymphocytes. In the next section (figure 4B) there is seen a larger tuberculous mass

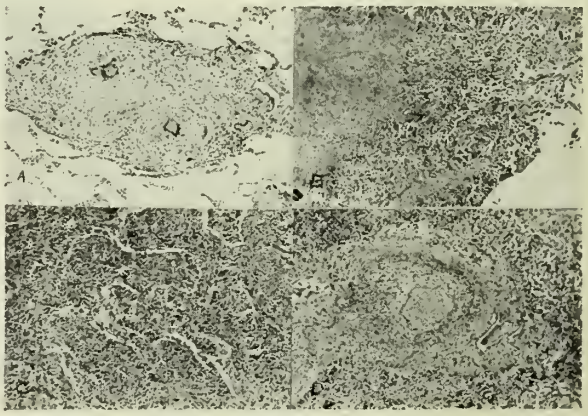
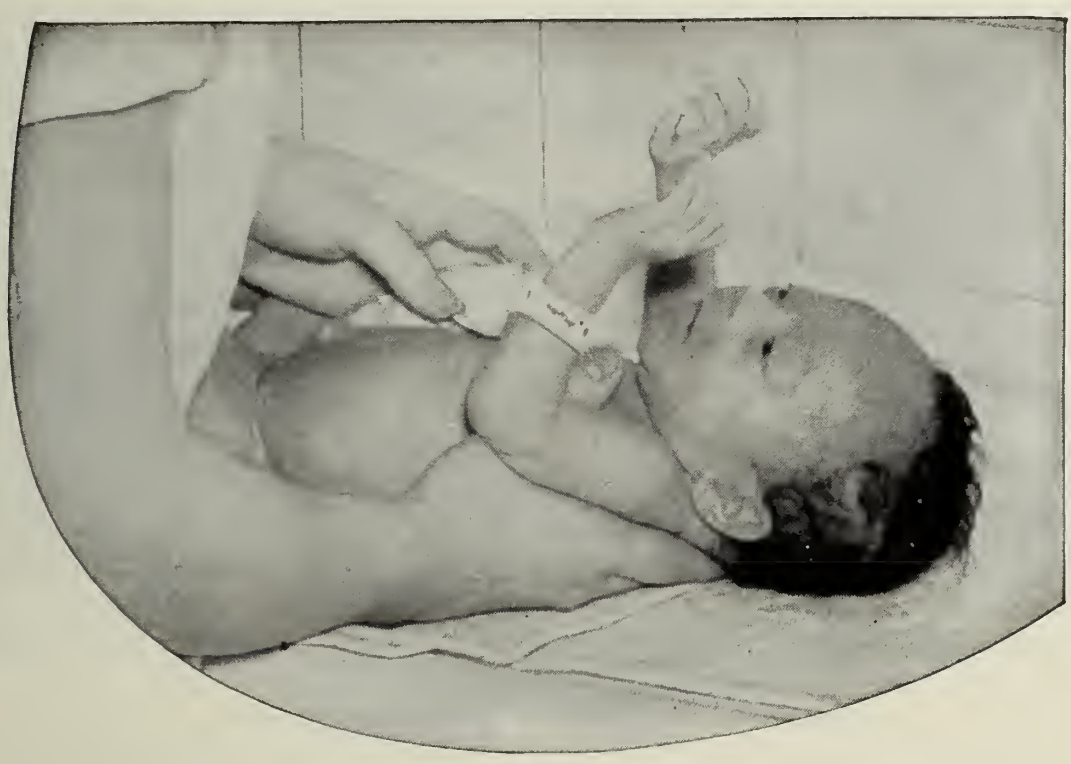


Fig. 4.

with caseation, again with surrounding reaction. In figure 4C a region of tuberculous pneumonia is shown in which there is beginning caseation, not only of the exudate, but also of the alveolar walls. This patient had bronchogenic dissemination of tubercle bacilli with caseous pneumonia throughout the lobes of the lungs, especially on the left side in which the cavity was located. In figure 4D there is seen the characteristic reaction on the part of a blood vessel. There is an active tuberculous



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WRITE FOR DESCRIPTIVE LITERATURE

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lesion in immediate proximity to an artery. The intima is thickened and the vessel has been reduced to about half its normal size.

Figure 5A shows a section of the mass, the possible nature of which was discussed at length. It is seen that it has no relation to the tuberculous process. It is a neoplasm composed for the most

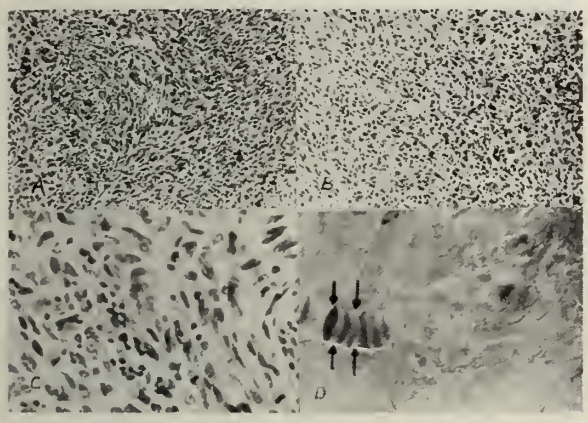


Fig. 5.

part of spindle-shaped cells arranged in parallel bundles and whirls, infiltrated with a few smaller cells of the lymphocytic type. Certainly the microscopic appearance is characteristic of a sarcoma. The next section (figure 5B) shows pleomorphism in the tumor; there is great variation in the staining capacity of the cells and their size and shape. There is abundant intercellular substance which appears to be an intimate part of the tumor. In figure 5C, a section of the tumor under higher power shows the character of the cells and the delicate fibrillary material between them; I consider these features to be evidence that the tumor is a fibrosarcoma. There were metastases to the regional nodes, and several nodules up to a centimeter or more in diameter were noted in the liver. Figure 5D shows a section of the pulmonary artery at the point at which the tumor invaded the wall of the artery and completely destroyed it. In one small area, the wall of the pulmonary artery (arrows) can be seen to be uninvolved, but there is tumor on the outside and tumor on the inside. Elsewhere it is seen that the wall is split apart by tumor; the muscle of the wall has been destroyed and there is nothing but tumor and necrotic tumor tissue. A part of the tumor immediately adjacent to the artery contained blood.

A section of the pericardium showed masses of fibrin, representing a reaction on the part of the pericardial tissue, and isolated cells were seen in the pericardium which may have been tumor cells. There was no evidence, however, of tuberculous pericarditis.

To recapitulate then, this patient had two major diseases. First, he had pulmonary tuberculosis characterized by fibrous scars at both apices and by a tuberculous cavity in the middle part of the left upper lobe; associated with the tuberculous cavity, there was tuberculosis throughout the other lobes in a distribution expected from spread from such a cavity. In other words, most of the bronchogenic tubercles were found in the lobe containing the cavity, the next largest number in the lower lobe on the same side, the next largest number in the lower lobe of the opposite side, and the least number in the upper lobe of the opposite side. The patient did have a first infection type of tuberculosis as evidenced by the presence of calcified nodules in the lung and lymph nodes.

In addition, there was a second major disease, a fibrosarcoma of the mediastinum with metastases to the regional nodes and to the liver.

In the discussion several points were emphasized, Dr. Alexander, as being important. First, the relation of tuberculosis and tumor; it would seem to me that from the standpoint of pathologic anatomy most of the evidence indicates that tuberculosis and cancer do not occur together more frequently than might be expected by chance. Certainly the finding of any sort of tumor, either carcinoma or sarcoma, in the wall of a tuberculous cavity is an unusual observation. There are a limited number in the world literature. In this case the mass was composed entirely of tumor; we do not, therefore, know the nature of the tissue in that region before the sarcoma appeared. Second, the cause of the hemorrhage: when a patient dies of exsanguination from a tuberculous lesion in a relatively short period of time, almost invariably a small aneurysm will be found projecting into the tuberculous cavity. Such an aneurysm was not found here nor was a point found where a probe could be passed to demonstrate a fistulous tract between the tracheobronchial tree and the pulmonary artery. In the absence of an aneurysm, which is not difficult to find if the inside of a tuberculous cavity is examined carefully, and with the evidence that there was hemorrhage into a part of the tumor tissue, I believe that the fatal hemorrhage was caused by erosion of the pulmonary artery by the fibrosarcoma. Third, concerning the recurrent laryngeal nerve paralysis; as far as could be demonstrated, the nerve was involved by tumor and not by tuberculosis.

FINAL ANATOMIC DIAGNOSIS

Chronic pulmonary tuberculosis involving the upper lobe of the left lobe.

Tuberculous cavity opening into a secondary bronchus of the upper lobe of the left lung.

Tuberculous bronchitis, left.

Bronchiogenic tuberculosis involving the upper and lower lobes of the left lung.

Calcified nodules in all lobes of the lungs.

Calcified nodules in the tracheobronchial lymph nodes, bilateral.

Fibrous scars at the apices of both lungs.

Fibrous pleural adhesions of all lobes of the lungs.

Fibrosarcoma involving the mediastinal lymph nodes, the upper lobe of the left lung, the tracheobronchial lymph nodes, the wall of the pulmonary artery, the pericardium and the liver.

Tumor partially occluding the right and left pulmonary artery and the secondary and tertiary branches of the left pulmonary artery.

Fibrinous pericarditis.

ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 3, March, 1947.

SPREAD OF TUBERCULOSIS IN FAMILIES OF TUBERCULOUS PATIENTS

A tabulation of the family records of patients with active tuberculosis under the supervision of the Los Angeles County Health Department has uncovered some surprising facts regarding the susceptibility of the members of certain families to the spread of this disease.

The figures show that nearly all of the new cases originate in a comparatively small proportion of the families exposed. These susceptible families deserve earnest study. Preventive measures within them can be successful only as they are directed toward the major elements of spread. What these elements are is still unknown. A family is a complex unit, exhibiting characteristics, traits, and habits that have been in operation for generations. Even though the faults of these families may not be easily corrected, if they can be defined so as to be recognized, they can be made the object of intensive health supervision. If tuberculosis is to be prevented among them, these families must have larger proportions of the tuberculosis prevention budget than is ordinarily allotted to them.

It is characteristic of tuberculosis in Southern California that it is concentrated in a few comparatively congested areas, inhabited chiefly by families in the low income brackets. Here many conditions favor the spread of disease. In planning surveys and applying special preventive measures, tuberculosis attack rates must be given careful consideration. Local surveys in Los Angeles with a house-to-house canvass in poor neighborhoods have detected five times as much active pulmonary tuberculosis as has been found by the same amount of effort expended in other types of surveys. More information about the reasons for spread in the homes where tuberculosis thrives is urgently needed. In these homes, the wage-earner, all other adults and the older children must be examined.

Crowded living quarters constitute a major fault. In spite of improvement, economic conditions must still be considered a factor. Although thousands of these families have moved to modern housing projects and many have been earning big wages, too often they have reverted to old living habits within the new dwellings. These habits have been gradually molded into characteristics that will require long and painstaking efforts to change.

In 1940, the Los Angeles County Health Department analyzed the family records of all the cases of active reinfection type tuberculosis. All cases found in the family within six months of the time that the first case in the family was diagnosed in the clinic were regarded as original cases. Only those detected thereafter were considered new cases whose infection was presumably due to exposure during the period of observation. Contacts with no active tuberculosis were not included in the tabulations unless they had been under observation six months or longer.

There were 506 families with 595 original cases and 1,637 other persons exposed. There were 135 new active cases developing among these exposed persons, or 8.25 per cent. Of these, four were active nonpulmonary, 45 were active primary and 86 active reinfection type pulmonary tuberculosis. In other words, slightly more than 5 per cent of the 1,637 contacts developed active reinfection type pulmonary tuberculosis six months or more after the discovery of the first known case in each of the respective families.

This data covers experience during the latter half of the 1931-1940 decade, during the worst years of the depression. Now, four years later, the present active cases have been analyzed, eliminating the families previously tabulated. Unquestionably, there was improvement in the economic status of these families. There was less cause for congestion within the home, and with better living conditions and improved nutrition there should have been less likelihood of the spread of infection. The average number of months of exposure of contacts was also less, because of improvement and extension of the isolation technique. In spite of all this the results show that the justifiable prediction of a lower attack rate would be in error. In 431 families with 1,264 contacts, 60 cases of active reinfection type pulmonary tuberculosis developed among the contacts, or an attack rate of 4.75 per cent. This is very little lower than the rate found in the previous survey.

The hazard in these families with this high attack rate is apparently not only due to the direct spread of the infection, but to other conditions favoring the spread. There must be some inherent fault either in their physical or their mental make-up which makes the members of these families more susceptible than the average person; or there may be contributory domestic habits unchanged by the usual public health education and supervision.

Conditions in other families in similar communities were found to be quite different. The X-ray surveys prevously mentioned were carried on in



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the most congested parts of these same areas, and 22,000 persons examined showed an attack rate of 0.5 per cent. The greater tendency to spread in certain families, in comparison with other families, is demonstrated by the fact that in families having more than one case, even where no positive sputum can be found, there is a high attack rate.

With this high attack rate in certain families, it would seem justifiable to isolate outside of the home every active case occurring in a family with a history of considerable tuberculosis. The effectiveness of such a ruling was shown in a small neighborhood where nine deaths occurred in eighteen months. An arbitrary edict was issued that no active case would be permitted to remain at home in that neighborhood. This stopped the spread and there have been no new cases. In another district, where there were a number of ex-sanatorium, chronic, advanced, communicable cases it was found possible to isolate within the homes with extra assistance. This procedure was found to be effective in stopping the spread of infection. In this type of family isolation is essential. The cases found should not be permitted to remain at home unless considerable material assistance is available and intensive supervision is supplied.

Spread of Tuberculosis in Families of Tuberculous Patients, P. K. Telford, M.D., and Ruth Garten-White, M.D., American Review of Tuberculosis, March, 1946.

BOOK REVIEWS

Modern Urology for Nurses. By Sheila Maureen Dwyer, R.N., B.S. Director School of Nursing and Nursing Service, Southampton Hospital, Southampton, New York; Formerly Supervisor, J. Bentley Squier Urological Clinic, Presbyterian Hospital, Instructor in Urological Nursing, Dept. of Nursing, College of Physicians and Surgeons, Columbia University, New York City; Assistant Director of Nurses, Woman's Medical College Hospital, Philadelphia; Supervisor of Nurses, American Hospital in Britain, Basingstoke, England; and George W. Fish, M.D., Associate Professor of Urology, College of Physicians and Surgeons, Columbia University, New York City; With a forward by Helen Young, R.N., Director-Emeritus, School of Nursing and Nursing Service, Columbia-Presbyterian Medical Center in the City of New York. Illustrated with 66 Engravings. Philadelphia: Lea & Febiger, 1945. Price $3.25.

Unlike many other books on the subject "Urology for Nurses," this little volume brings into striking reality the present day status of the specialized urologic nurse, that is, the graduate nurse who is qualified after special training to comprehend, minister to and treat a patient in the urologic service within the hospital, or, if need be, within the home.

Compact as it must of necessity be, the book presents a comprehensive consideration of many of the problems in urologic nursing which the specially trained nurse will have to meet. To write such a book the authors are especially well qualified by virtue of their extensive experience in the Columbia-Presbyterian Medical Centre and the Squire Urological Clinic there.

The plan of the book either as a teaching guide or outline is to be commended. However, one is forced to speculate whether it is necessary or desirable to teach nurses in detail the diagnosis and treatment of the more common diseases of the urinary tract: some knowledge of their etiology, symptoms and pathology, as a basis for intelligent preoperative and postoperative care the nurse must have; it is indeed difficult to judge just how much is to be included in the teaching program that will qualify adequately the nurse who is to assume the responsibilities of caring for the average surgical urologic patient. The authors present, after due consideration of this question, in anatomy and physiology, symptoms, diagnosis and pathology of diseases of the genitourinary tract, what they consider to be essential in order to furnish to the graduate nurse "a working knowledge of urologic disease which will help her carry out her nursing duties more intelligently, to the advantage of the patient and the attending surgeon." This objective, and the effort to "emphasize the special points in urologic nursing care" constitute the most valuable features of this work.

The book should serve as a useful guide and "refresher" to any nurse no matter how well she may be informed from observation in the hospital urologic wards or from the practice in the care of such cases: there are numerous chapters in which operative procedures are extensively presented, preoperative and postoperative care well described, and special Chapters, II and XI, devoted to the use, description, sterilization of cystoscopic instruments, ureteral catheters and other miscellaneous instruments and apparatus.

A very attractive chapter, of special practical value for the nurse, is the one dealing with "Operating Room Procedures." Here thirty-two procedures are described presenting in sequence the position of the patient, the preparation and draping, instruments and needles required, the necessary drains, suture material and materials for the surgical dressings, ending with the steps in sequence of the special surgical procedure under consideration.

The illustrations have been well selected with a view to their practical value in furnishing a clearer understanding of the subjects in general and the nursing care in particular.

"Modern Urology for Nurses" can be recommended favorably to surgeon, urologist, student nurse and, particularly, to the special urologic nurse. M. G.

Prescribing Occupational Therapy. Second Edition. By William Rush Dunton, Jr., M.D. Springfield, Ill.: Charles C. Thomas, 301-327 East Lawrence Avenue. 1945. Price $2.50.

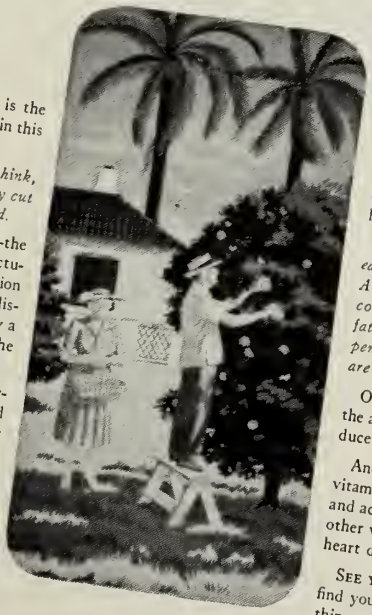
This book is similar to that published in 1928 by C. C. Thomas with an addition of a chapter on rehabilitation, as well as up-to-date reference and some deletions, which are no longer considered of value. The book covers a subject not taught in the medical school curriculum. Few surgeons and physicians use occupational therapy, still fewer specifically prescribe the type and amount of occupational therapy that they feel best suited to the needs of their patient. This book covers in individual chapters mental disorders, general medical cases, surgical cases, orthopedic cases, tuberculosis, cardiac cases and bed occupation. Thus there is no need for the neurologist to read the chapter on orthopedics to arrive at the meat of his particular problem, or for any specialist to plough through extraneous matter. The list of references appended to each chapter is excellent and is one of the most valuable points of the book as it will serve for digested reading for the man who wishes to pursue more completely the subject. G. P.

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Other drugs help your doctor to regulate the action of an irregular heart and to reduce the strains that are put upon it.

And his modern knowledge of diet and vitamins, and the prevention of anemia and acute respiratory infections gives him other weapons to use against progressive heart disease.

SEE YOUR DOCTOR. If at any time you find yourself wondering: "Is there something wrong with my heart?" . . . see your doctor at once.

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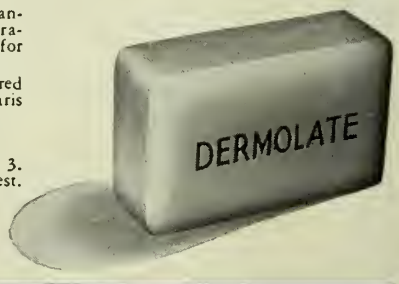
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MARCH, 1947

EDITORIALS

ANNUAL SESSION

The Annual Session of the Association will convene March 30, 31, and April 1, 2, in Kansas City. General meetings, the House of Delegates, scientific and technical exhibits, motion pictures and registration will be in the Municipal Auditorium. All dinner and luncheon meetings will be held in Hotel President. The Council will convene on the afternoon of Sunday, March 30, and a dinner for presidents and secretaries of County Medical Societies will be held that evening. Other sessions will begin on Monday, March 31.

The schedule of the Session, the program, delegates that have been reported, listing of scientific and technical exhibits and motion pictures are listed in this issue of THE JOURNAL. It is believed that the Session is well planned and that it has much to offer every member of the Association.

Special features of the meeting, aside from the excellent program, are scientific exhibits and motion picture sessions and extensive and instructive technical exhibits.

The Jackson County Medical Society will be host at a smoker and entertainment at Hotel President on Tuesday evening to which all members are invited. Earlier on Tuesday evening alumni of Missouri schools and members of medical fraternities will have a cocktail party.

The Annual Banquet in Honor of Past Presidents will be held on Monday evening at which time the President and President-Elect will speak and George F. Lull, M.D., Secretary of the American Medical Association, will deliver the principal address.

Members who arrive early for the Session are invited to attend a program on "Diseases of the Chest" sponsored by the Missouri Chapters of the College of Chest Physicians and the American Trudeau Society. The program appears in this issue.

PROVISIONAL MORTALITY AND NATALITY DATA FOR 1946

Provisional reports indicate that a total of 3,260,000 births were registered in the United States in 1946, the U. S. Public Health Service, Federal Security Agency, announced recently. This figure surpasses the previous high of 2,934,860 recorded in 1943 by 11 per cent. The provisional birth rate for the last year was 23.3 per 1,000 population including the armed forces overseas, or nearly 19 per cent above the rate of 19.6 for 1945 and 8 per cent higher than the wartime peak of 21.5 for 1943. In 1943 the birth rate was the highest recorded since 1924.

The mortality record for 1946 compared favorably with that for 1945. The estimated number of deaths was 1,400,000, which is nearly the same as the final number of 1,401,719 tabulated for 1945. The provisional death rate is estimated at 10.1 per 1,000 population excluding the armed forces overseas as compared with the final rate of 10.6 for 1945. This decrease of 4.7 per cent between 1945 and 1946 is, in part, due to the increase in the population at the younger ages, which resulted from the return of several million young men from duty overseas with the armed forces.

The provisional infant mortality rate for the reporting area of forty-six states and the District of Columbia was 36.1, or 3.7 per cent lower than the corresponding rate of 37.5 infant deaths per 1,000 live births for 1945. These rates have been adjusted for the changing number of births.

NEWS NOTES

S. P. Simmons, M.D., Marshall, has been appointed county physician of Saline County.

Rex L. Diveley, M.D., Kansas City, was installed as president of the American Academy of Orthopedic Surgeons at a meeting in Chicago, January 25 to 30.

O. H. McCandless, M.D., Kansas City, was honored on January 27 by a dinner given by the board of directors of the Independence Sanitarium and Hospital. Staff members of the hospital and members of the Radiological Society of Greater Kansas City were guests.

Evarts A. Graham, M.D., St. Louis, has been made an honorary member of the French Academy of Surgery.

Herbert J. Rinkel, M.D., Kansas City, and Charles H. Eyermann, M.D., and French K. Hansel, M.D., St. Louis, will participate in presenting a refresher course under the auspices of the American Academy of Allergy in Omaha, Nebraska, the week of May 19.

DEATHS

Sneed, Carl M., M.D., Columbia, a graduate of the University of Missouri School of Medicine, 1901; Fellow of the American Medical Association; member and former president of the Boone County Medical Society; aged 69; died November 6, 1946.

Woolsey, Calvin Lee, M.D., Braymer, a graduate of St. Louis University School of Medicine, 1908; member of the Caldwell-Livingston County Medical Society; aged 63; died November 12, 1946.

Walker, George W., M.D., Cape Girardeau, a graduate of Washington University School of Medicine, 1903; Fellow of the American Medical Association; member of the Cape Girardeau County Medical Society; aged 70; died November 13, 1946.

Roseberry, Eugene C., M.D., a graduate of Rush Medical College, 1895; member and former president of the Greene County Medical Society; aged 78; died November 28, 1946.

Barnett, Cecil G., M.D., Kirkwood, a graduate of the National University of Arts and Sciences, 1917; Fellow of the American Medical Association; member of the St. Louis County Medical Society; aged 54; died December 24, 1946.

Hempelmann, Louis H., M.D., St. Louis, a graduate of Washington University School of Medicine, 1896; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 73; died December 27, 1946.

Williams, John R., M.D., El Dorado Springs, a graduate of the National University of Arts and Sciences, St. Louis, 1898; member and former president of the Vernon-Cedar County Medical Society; aged 75; died December 28, 1946.

Geiger, Charles G., M.D., St. Joseph, a graduate of the Ensworth Medical College, St. Joseph, 1888; honor member of the Buchanan County Medical Society; aged 81; died December 28, 1946.

Klingner, Thomas O., M.D., Springfield, a graduate of the Missouri Medical College, 1898; member and former president of the Greene County Medical Society; aged 72; died January 7.

Thompson, Robert V., M.D., Jamesport, a graduate of the Missouri Medical College, 1889; member and former president of the Grundy-Daviess County Medical Society; aged 82; died January 10.

Lancaster, Herschel W., M.D., Nevada, a graduate of the Beaumont Hospital Medical College, 1892; Affiliate Fellow of the American Medical Association; honor member of the Vernon-Cedar County Medical Society; aged 84; died January 17.

Camp, George Hull, M.D., Springfield, a graduate of Emory University School of Medicine, Atlanta, 1920; member of the Greene County Medical Society; aged 53; died January 29.

Maltby, Burton, M.D., Liberty, a graduate of the University Medical College of Kansas City, 1908; Fellow of the American Medical Association; member of the Clay County Medical Society; aged 61; died January 30.

Mathias, Edward L., M.D., Kansas City, a graduate of the University of Maryland School of Medicine, 1904; honor member of the Jackson County Medical Society; aged 66; died February 3.

MISCELLANY

PROGRAM ON DISEASES OF THE CHEST

March 30, 1947, President Hotel, Kansas City

Sponsored by the Missouri Chapter of the College of Chest Physicians and the Missouri Chapter of the American Trudeau Society.

9:00 a. m. Some Problems in Unsatisfactory Pneumothorax . . . John Kalisch, M.D., Koch.

10:15 a. m. Mistaken Diagnoses of Tuberculosis . . . Rubin A. Kaplan, M.D., and Louis Levine, M.D., Excelsior Springs.

11:00 a. m. Phrenic Crush—Twenty Consecutive Cases . . . Edward W. Laboe, Howell, Mich.

12:30 p. m. Missouri Chapter of College of Chest Physicians luncheon meeting. Election of officers.

2:00 p. m. Pulmonary Calcification and Histoplasmosis . . . M. L. Furcolow, M.D., and H. L. Mantz, M.D., Kansas City.

2:45 p. m. Streptomicin Therapy in Bronchial Tuberculosis . . . Arthur Olsen, M.D., Rochester, Minn.

3:45 p. m. Epidural Anesthesia in Chest Surgery . . . Fred Fujikawa, M.D., C. A. Brasher, M.D., Mount Vernon, Arnoldo Neves, M.D., Brazil.

7:00 p. m. Missouri Tuberculosis Association dinner meeting.

8:30 p. m. X-ray Conference (physicians invited to bring films) . . . W. W. Buckingham, M.D., Kansas City.

All members of the Missouri State Medical Association are invited to attend this meeting and take part in the discussions.

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for March and April, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

March 5: Miscellaneous.
March 7: Gynecologic and Genitourinary.
March 12: Skin.
March 14: Breast.
March 19: Gastrointestinal.
March 21: Cervix.
March 26: Skin.
March 28: Head and Neck.
April 2: Miscellaneous.
April 4: Gynecologic and Genitourinary.
April 9: Skin.
April 11: Breast.
April 16: Gastrointestinal.
April 18: Cervix.
April 23: Skin.
April 25: Head and Neck.
April 30: Bone and Lymphomas.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

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Carroll County Medical Society

A dinner meeting of the Caldwell-Livingston, Carroll, Grundy-Daviess, Harrison, Linn and Mercer County Medical Societies was held at the Strand Hotel, Chillicothe, on January 21. Forty-two physicians attended the meeting which was sponsored by the Carroll County Medical Society.

A very informative presentation of the subject "Hypertensive Heart Disease" was given by William M. Ketcham, M.D., and Russell Kerr, M.D., Kansas City.

Another joint meeting of the group is scheduled for

April 29 under the sponsorship of the Carroll County Medical Society.

JOHN H. PLATZ, M.D., Secretary.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on January 22, at 8:30 p. m., at the Health Center, St. Louis County Hospital, Clayton.

The minutes of the last meeting were read and approved.

Richard A. Sutter, M.D., introduced the newly appointed chairman of his committees for 1947: Drs. Sigmund Tashma, John O'Connell, Eugene R. Brown, Edward C. Holscher, Otto Koch and Fred W. Teiber. Seven chairmen were absent.

Dr. Sutter then introduced the members of the attendance committee: Drs. Robert Kingsland, Chairman, Royal C. McLean and Stephen R. Richtarsic.

The introduction of guests and long absent members followed: Drs. Albert Hand, William A. Stephens, Guerdan Hardy and Paul Hagemann.

Lois Wyatt, M.D., announced a meeting of General Practitioners to be held at the St. Louis Medical Society Auditorium on January 24.

Upon motion of Paul R. Whitener, M. D., the treasurer was authorized to present the Women's Auxiliary with a check for $100.00 for food served the society members.

Upon motion of R. B. Denny, M.D., the secretary was instructed to write a letter of thanks to the Hamilton-Schmidt and A. S. Aloe Surgical Companies for the attendance prizes so generously donated for the Installation Banquet.

Julius Jensen, M.D., suggested a regular meeting be set aside for a discussion of the amendments to the constitution and by-laws and February 26 was selected.

Eugene Brown, M.D., reviewed the fact that attendance at five regular meetings of the Society was rewarded with two free tickets to the Van Horn Dinner, and an attendance at ten regular meetings throughout the year entitled the member to the same privilege at the annual Installation Banquet. Dr. Brown also stated that the State Medical Association would defray the expenses of a prominent speaker for the Van Horn Dinner.

Harry Agress, M.D., spoke on "Blood Transfusions in the Management of Surgical Cases." His paper was discussed by Drs. Guy Magness, Stephen Richtarsic, A. J. Steiner, Sigmund Tashma, Paul Hageman, C. E. Sanders, Albert Hand and Leo Gowen. At the suggestion of Dr. Denny the speaker was given a rising vote of thanks.

MARTYN SCHATTYN, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, M.D., SPRINGFIELD, COUNCILOR

Members of the Barton, Bates, Cass, Cedar, Dade, Dallas, Henry, Hickory, Polk, St. Clair and Vernon County Medical Societies attended a dinner meeting at the Hotel Mitchell, Nevada, on January 30, at 6:30 p. m. This is the first of what is planned to be a series of dinner meetings for the medical societies of this area. Tentative plans were made at this meeting to hold the next meeting at Butler. Forty-one members of these societies attended. Guests present in addition to the program speakers included Drs. R. W. Kennedy, Marshall, and Wallis Smith, Springfield, Councilors of the Sixth and Eighth Districts respectively; Mr. W. H. Bartleson, Executive-Secretary, Jackson County Medical Society; Mr. Ray McIntyre, Field Secretary, Missouri State Medical Association, and a number of the local druggists.

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CARROLL W. OSGOOD, M.D.
WILLIAM T. KRADWELL, M.D.
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LEWIS DANZIGER, M.D.
RUSSELL C. MORRISON, M.D.
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ARTHUR J. PATEK, M.D.

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Morris B. Simpson, M.D., Kansas City, President-elect of the Missouri State Medical Association, discussed "Prepaid Medical Care and Hospitalization the Voluntary Way."

Graham Asher, M.D., Kansas City, spoke on "Classification of Hypertension; the Basis of Rational Treatment." The excellent discussions of these topics were much appreciated by those present.

Dr. Kennedy announced that the Sixth Councilor District meeting will be held in Sedalia on February 17 at the Bothwell Hotel.

Paul L. Barone, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR
South Central Counties Medical Society

The South Central Counties Medical Society met at the El Patio Hotel, Cabool, January 17, with the following members and visitors present for dinner: Drs. J. R. Mott, Hartville; J. A. Fuson, Mansfield; R. A. Ryan, R. W. Denney and A. C. Ames, Mountain Grove; Garrett Hogg, Jr., Cabool; R. T. Harsh, Houston; Leslie Randall, Licking; C. P. Callihan, Willow Springs; E. C. Bohrer and Rollin H. Smith, West Plains; Harry D. Silsby and John P. Ferguson, Springfield.

After dinner the meeting was called to order by the President, Dr. Mott, and the minutes of the last meeting were read and approved.

Dr. Silsby then spoke on "Migraine."

Dr. Ferguson spoke on "Common Diseased Conditions of the Cervix."

A vote of thanks was given the speakers and the meeting adjourned to meet in Mountain Grove, February 21.

A. C. Ames, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR
St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society met December 12 at the State Hospital at Farmington, at 8:00 p. m. with the following members present: Drs. Dailey Appleberry, Rivermines; Frank J. Nichols, Farmington; G. L. Watkins, Farmington; Emmett F. Hoctor, Farmington; F. W. Gale, Bismarck; J. P. Yeargain, Irondale; Harry Barron, Fredericktown; H. C. Gaebe, Desloge; Marvin T. Haw, Jr., Bonne Terre; James Mulkey, Farmington; Jack Foster, Desloge; H. M. Roebber, Bonne Terre; Charles H. Appleberry, Flat River; Van W. Taylor, Bonne Terre; F. R. Crouch, Farmington; C. E. Sutton, Bonne Terre; H. C. Sheppard, Flat River; and Marvin Grossman, Fredericktown.

Leroy Stevens, M.D., St. Louis, gave an interesting talk on "Poliomyelitis." Dr. Stevens treated a large number of patients for this disorder during the recent epidemic and presented an excellent outline on its diagnosis, treatment and prognosis.

At the business session which followed the scientific meeting, Dr. A. L. Evans, Bonne Terre, was made an honor member. Dr. Evans began practice in Bonne Terre forty-five years ago and for the last twenty-five years has largely specialized in pediatrics in which branch of medical practice he has been unusually successful. He has always been an active member of the society, is an active member of the local hospital staff and has always shown great interest in the problems of organized medicine.

Van W. Taylor, M.D., Secretary.

COUNTY SOCIETY HONOR ROLL

1947

(Societies which have paid dues for all members and date placed on honor roll)

Camden County Medical Society, December 9, 1946.
Morgan County Medical Society, December 14, 1946.
Moniteau County Medical Society, December 15, 1945.
Audrain County Medical Society, December 19, 1946.
Miller County Medical Society, December 19, 1946.
Ste. Genevieve County Medical Society, December 23, 1946.
Laclede County Medical Society, December 27, 1946.
Webster County Medical Society, December 30, 1946.
Mercer County Medical Society, January 1, 1947.
Callaway County Medical Society, January 4, 1947.
Scott County Medical Society, January 7, 1947.
DeKalb County Medical Society, January 17, 1947.
Taney County Medical Society, January 18, 1947.
Mississippi County Medical Society, January 27, 1947.
Dallas-Hickory-Polk County Medical Society, January 30, 1947.
Pike County Medical Society, January 30, 1947.
Barton-Dade County Medical Society, February 2, 1947.
Carroll County Medical Society, February 4, 1947.
Harrison County Medical Society, February 7, 1947.
Howard County Medical Society, February 9, 1947.
Perry County Medical Society, February 11, 1947.
Bates County Medical Society, February 14, 1947.

BOOK REVIEWS

Sex Problems of the Returned Veteran, by Howard Kitching, M.D. Foreword by Ernest R. Groves, Professor of Sociology, University of North Carolina. Emerson Books, Inc. New York. 1946. Price $1.50.

It is fully agreed with the writer of the "Forward," namely that the book is written for the returning service man and his wife to read. It appears definitely in a style for laymen to be able to read and appreciate.

On the whole, the book is an excellent one for the returning soldier or sailor. Furthermore, it can be highly recommended for the wife to read. Possibly the author has made some heavy or discouraging remarks on the various pitfalls of marriage. Also he may have laid some excessive stress upon the blindness in general of marriage. The book is a compact one, 125 small pages. Thus one need not expect to be bored by excessive verbosity. There are six chapters with appropriate attention to each one. These chapters are: The Goal of Marriage; Separation; The Threat to Marriage; The Husband's Dilemma; The Wife's Problem; Reunion in Prospect; and Reunion in Reality.

At the end of the book there are a few brief lines on religion but a discussion is avoided. A. L. S.

Diabetes, A Concise Presentation by Henry J. John, M.A., M.D., F.A.C.P., Lt. Col., M.C., Cleveland, Ohio. Illustrated. C. V. Mosby Company. 1946. Price $3.25.

This thesis is a compact, practical dissertation on the diagnosis and treatment of diabetes mellitus. The material is concise and clearly written, giving a compact outline of the commoner problems encountered in treating diabetes.

The author develops his own theory in the controversial points which come up in treating diabetic coma and hyperinsulinism and is very liberal and frank in acknowledging the lack of complete understanding of some of these problems.

I think the main use of this type of book would be its practical usefulness as a quick reference text.

R. S. C.

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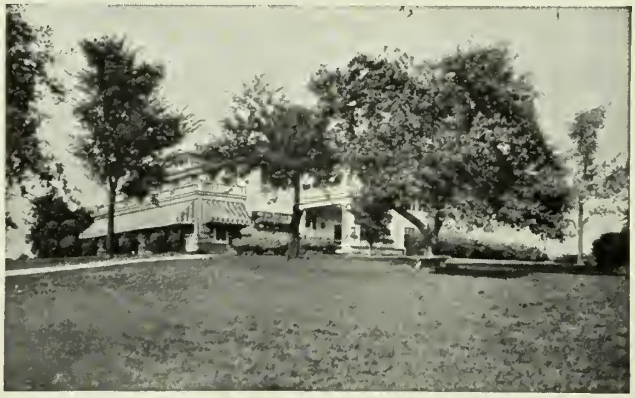
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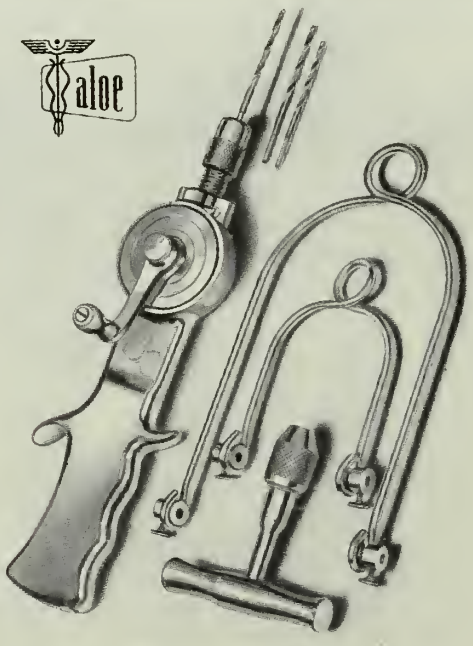
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WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

Kansas City, March 30, 31, April 1, 1947

Hotel Muehlebach

Tentative Program

Sunday, March 30, 1947

3:00 p. m. Tea honoring State President and state officers—at the home of Mrs. Sam Roberts, 5964 Overhill Road. Jackson County Auxiliary, hostess. All visiting doctor's wives invited.

Monday, March 31, 1947

8:00 a. m. Past-Presidents' Breakfast—Hotel Muehlebach, Mrs. H. L. Mantz, Chairman.

8:30 a. m. Registration—Mezzannine—Hotel Muehlebach.

9:30 a. m. Meeting of Executive Board—Music Room—Members are welcome.

12:30 p. m. Luncheon — Ball Room — Hotel Muehlebach—honoring National President, Mrs. Jesse D. Hamer—Mrs. W. E. Koppenbrink, presiding.
- Invocation—Mrs. J. W. Lightner, Lafayette Co.
- Music.
- Welcome—The Honorable William E. Kemp, Mayor of Kansas City.
- Guest Speaker.

7:00 p. m. Annual Dinner of Missouri State Medical Association—Hotel President—Auxiliary Members and Guests Welcome.

Tuesday, March 31, 1947

8:30 a. m. Registration—Hotel Muehlebach.

9:00 a. m. General Meeting—Ballroom Hotel Muehlebach. Mrs. W. E. Koppenbrink, Presiding.
- Invocation—Mrs. E. L. Spence, Kennett.
- Pledge of Loyalty.
- Greetings—Mrs. E. H. Theissen—President Jackson Co. Auxilliary.
- Response—Mrs. J. L. Washburn, Versailles.
- Report of Credentials.
- Roll Call—Mrs. Roy C. Dripps—Recording Secretary.
- Reading of Minutes.
- Announcements—Mrs. H. C. Trippe—Convention Chairman.
- Memorial Service—Mrs. D. P. Dyer, Sedalia.
- Reports:
  - Officers.
  - Standing Committees.
  - County Presidents.
- Old Business.
- New Business.
- Resolutions.
- Nominations—Mrs. R. C. Haynes, Marshall.
- Election of Officers and Delegates.
- Installation—Mrs. David S. Long, Harrisonville.
- Courtesy Resolutions—Mrs. E. E. Wadlow, St. Joseph.
- Adjournment.

1:00 p. m. Annual Luncheon — Ballroom Hotel Muehlebach, Mrs. W. E. Koppenbrink, Presiding.
- Invocation—Minister from Kansas City.
- Music.
- Introduction of Guests.
- Guest Speaker—Mrs. Jesse D. Hamer, National President.
- Presentation of Gavel to Incoming President.

3:30 p. m. Post-Convention Board Meeting — Mrs. W. L. Allee, Presiding.

BOOK REVIEWS

PRINCIPLES OF HEMATOLOGY, with 106 Illustrative Cases, and 167 Illustrations including 173 original photomicrographs and 95 original charts and drawings. By Russell L. Haden, M.A., M.D., Chief of the Medical Division of the Cleveland Clinic, Cleveland, Ohio; Formerly Professor of Experimental Medicine in the University of Kansas School of Medicine, Kansas City, Kansas. Third Edition, thoroughly revised. Lea & Febiger, Philadelphia, 1946. Price $5.00.

This is the third edition of Dr. Haden's well-known book. It is an excellent discussion of the subject of hematology taken up in order of the blood, the hematopoietic system and blood formation, the red and white systems, hemoglobin, the platelet count, the technic of blood examination, which, one might add, comprises the first part of the book. The second part of the book takes up the mechanism of anemia and polycythemia, of leukocytosis and leukopenia, and also that of abnormal bleeding. The third part discusses the treatment of anemia and polycythemia, leukemia and leukopenia, and pathologic bleeding. He then gives a splendid grouping of the blood disorders.

A number of chapters are devoted to the classification of anemias, macrocytic, hypochromic, microcytic, hemolytic, cryptic, pernicious and polycythemias. There are four chapters illustrating leukocytoses and leukopenias, leukemias and blood disorders in relation to splenomegaly, and cases illustrating pathologic hemorrhage. Numerous charts, diagrams and microphotographs are found throughout the book.

Dr. Haden has done a good job. Anyone interested in keeping abreast of the rapid advances in hematology will find this present third edition very useful.

R. B. H. G.

THE EFFECT OF SMALLPOX ON THE DESTINY OF THE AMERINDIAN. By E. Wagner Stearn, Ph.D., and Allen E. Stearn, Ph.D. Boston. Bruce Humphries, Inc. 1945. Price $2.50.

Everyone has seen Indians and photographs of them with pock-marked faces. This book attempts to show that smallpox was one of the great causes of morbidity among the American Indians. Imported by the Spaniards (Cortez in 1620), severe recurrent epidemics of the disease occurred among almost all the Indian tribes in Central, South and North America. Failure to quarantine the Indian and his dependence of his own medicine man caused a high morbidity among many of the tribes in the early seventeenth and eighteenth centuries.

However in 1803, during Jefferson's administration, the introduction of vaccination and quarantine laws by the Indian agencies reduced the incidence of the disease considerably. With revaccination at five-year intervals, the American Indian is now relatively free of smallpox.

The authors are to be congratulated on this monograph which is a splendid addition to the literature on the importance of vaccination in our civilization and the devasting effect of smallpox on aborigines peoples.

N. T.

EIGHTY-NINTH ANNUAL SESSION
MISSOURI STATE MEDICAL ASSOCIATION

March 30, 31, April 1, 2, 1947

Kansas City

TIME AND PLACE OF MEETINGS

Sunday, March 30

4:00 p. m. Meeting of the Council. Hotel President.
6:00 p. m. Dinner for Secretaries and Presidents of County Medical Societies. Hotel President.

Monday, March 31

8:00 a. m. Registration. Arena, Municipal Auditorium.
9:00 a. m. Motion Pictures. Arena, Municipal Auditorium.
9:30 a. m. House of Delegates. Little Theater, Municipal Auditorium.
11:00 a. m. Inspection of Technical and Scientific Exhibits by Delegates.
12:00 noon. Maternal Welfare Committee Luncheon. Herman W. Johnson, M.D., Houston, Texas, speaker. Hotel President.
1:30 p. m. Scientific Session. Little Theater, Municipal Auditorium.
2:40 p. m. View of Exhibits. Arena, Municipal Auditorium.
3:00 p. m. Scientific Session. Little Theater, Municipal Auditorium.
4:00 p. m. House of Delegates. Little Theater, Municipal Auditorium.
4:00 p. m. Motion Pictures. Arena, Municipal Auditorium.
7:00 p. m. Annual Banquet. Hotel President.

Tuesday, April 1

8:00 a. m. Registration. Arena, Municipal Auditorium.
9:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.
11:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
12:00 noon. University of Missouri Alumni luncheon. Hotel President.
1:30 p. m. Scientific Session. Little Theater, Municipal Auditorium.
3:00 p. m. View of Exhibits. Arena, Municipal Auditorium.
3:30 p. m. Scientific Session. Little Theater, Municipal Auditorium.
5:30 p. m. Alumni and Fraternity Cocktail Party. Hotel President.
8:00 p. m. Smoker and Entertainment, Jackson County Medical Society, Host, Hotel President.

Wednesday, April 2

8:30 a. m. Registration. Arena, Municipal Auditorium.
9:00 a. m. Scientific Session. Little Theater Auditorium.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.
11:00 a. m. Scientific Session. Little Theater, Municipal Auditorium.
1:00 p. m. Scientific Session. Little Theater, Municipal Auditorium.
2:30 p. m. House of Delegates. Little Theater, Municipal Auditorium.
4:00 p. m. Meeting of the Council. Little Theater, Municipal Auditorium.

SCIENTIFIC PROGRAM OF GENERAL MEETINGS

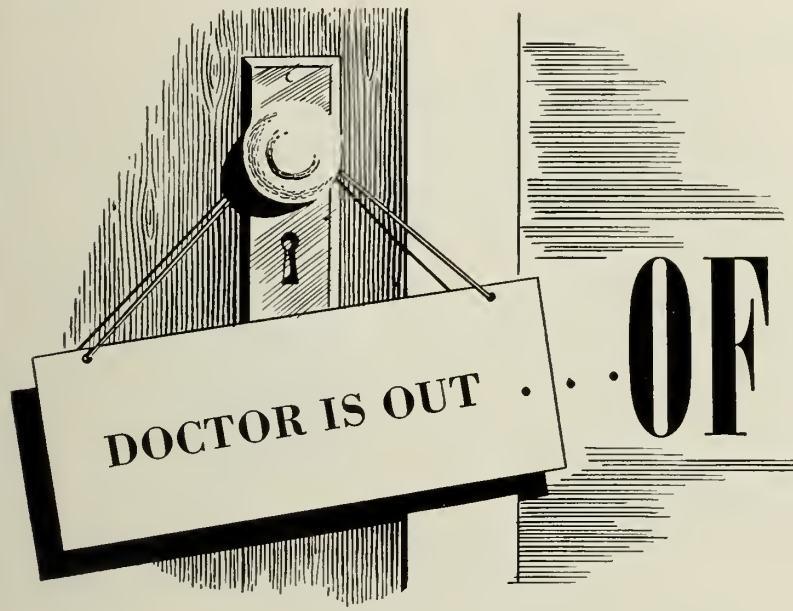
General Meeting

Monday, March 31, 1947, 1:30 p. m.—Little Theater, Municipal Auditorium

1:30 p. m. How the Veterans Administration Will Function Outstate, Curtis H. Lohr, M.D., St. Louis.
1:50 p. m. The Veterans Administration Residency Training Program, Franklin E. Walton, M.D., St. Louis.
2:10 p. m. The Medical Care of the Veteran, Robert Zollinger, M.D., Washington, D. C.
2:40 p. m. View of Exhibits. Arena, Municipal Auditorium.
3:00 p. m. Uterine Ring Dystocia, Herman W. Johnson, M.D., Houston, Texas.



(a) Confusing and conflicting terminology with an attempt at clarification. (b) The clinical diagnosis of varying degrees of ring dystocia with slides. (c) The complication has a fairly high incidence to obstetricians who are ring conscious. (d) Treatment as to method of delivery with maternal and fetal mortality.



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3:30 p. m. Diagnosis and Treatment of Bronchial Lesions, Arthur M. Olsen, M.D., Rochester, Minn.



The diagnosis of lesions of the bronchial tree requires the cooperative effort of the physician, the radiologist and the bronchoscopist, and the services of the bacteriologist and the pathologist often are necessary. When the history or physical findings cause one to suspect thoracic disease, x-rays of the chest always are indicated. Special roentgen examinations, including fluoroscopy and bronchography, often are necessary. Bronchoscopic examination of sputum for acid-fast bacilli should be carried out in every case of lung disease. Malignant cells can be found in the sputum of some cases of bronchial cancer. Advances in the therapy of thoracic conditions have been very great in recent years. Thoracic surgery and chemotherapeutic advances have improved greatly the prognosis of many pulmonary conditions. Aerosol therapy has proved to be a contribution to the therapy of pulmonary suppurative disease.

4:00 p. m. House of Delegates. Little Theater, Municipal Auditorium.
4:00 p. m. Motion Pictures. Arena, Municipal Auditorium.
7:00 p. m. Annual Banquet.

BANQUET IN HONOR OF PAST PRESIDENTS

Monday, March 31, 1947, 7:00 p. m.—Ballroom, Hotel President

Howard B. Goodrich, M.D., Hannibal, President, Presiding

Tendered by Officers of the Association, Presidents and Secretaries of County Medical Societies, Members of the House of Delegates, Members of the Association and Their Guests to Past Presidents of the Association.
Address of Welcome—A. N. Lemoine, M.D., Kansas City, President, Jackson County Medical Society.
Introduction of Past Presidents and Presentation of Keys to Past Presidents.
Introduction of Guests.
Introduction of Winner of Woman's Auxiliary Essay Contest.
Address of the President—Howard B. Goodrich, M.D., Hannibal.
Address of the President-Elect—Morris B. Simpson, M.D., Kansas City.
The Present Status of State Medicine, George F. Lull, M.D., Chicago, Secretary, American Medical Association.

General Meeting

Tuesday, April 1, 1947, 9:00 a. m.—Little Theater, Municipal Auditorium

Symposium on Poliomyelitis

9:00 a. m. Report on the 1946 Epidemic of Poliomyelitis in Missouri, Frank D. Dickson, M.D., and Asa Jones, M.D., Kansas City.
9:30 a. m. Etiology, Immunology and Pathology of Poliomyelitis, Ferdinand C. Helwig, M.D., Kansas City.

A brief summary of the cultivation and properties of the virus of poliomyelitis together with remarks on the various viral strains will be presented. Some of the important immunologic features of the disease including antibodies, the neutralization test, artificial immunization, passive immunity and nonspecific factors in resistance will be touched upon, and the more important features in the pathology and pathogenesis of poliomyelitis will be discussed.

10:00 a. m. Diagnosis and Treatment of Poliomyelitis in the Acute Stage, Russell J. Blattner, M.D., St. Louis.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.
11:00 a. m. Treatment of Anterior Poliomyelitis in the Subacute, Convalescent and Chronic Phases, H. R. McCarroll, M.D., St. Louis.

The three phases of the disease which are encountered after the acute stage has passed will be discussed and consideration given to the treatment of the patient during each. This will be discussed in detail as regards the subacute and convalescent phases of the disease. An attempt will be made to evaluate the use of hot wet packs, prostigmine, curare and other recent suggestions for the management of these patients. An attempt will be made to rationalize the treatment and management of the patient with poliomyelitis during the recovery and residual phases.

11:30 a. m. Discussion opened by:
E. R. Bohrer, M.D., Jefferson City.
C. T. Herbert, M.D., Cape Girardeau.
H. E. Petersen, M.D., St. Joseph.
D. B. Landau, M.D., Hannibal.

General Meeting

Tuesday, April 1, 1947, 1:30 p. m.—Little Theater, Municipal Auditorium

Symposium on Chemotherapy

1:30 p. m. Introduction of Subject, T. G. Orr, M.D., Kansas City.
2:00 p. m. Chemotherapy as Used in Surgical Conditions, William A. Altemeier, M.D., Cincinnati, Ohio.
2:30 p. m. Chemotherapy as Used in Medical Conditions, Donald R. Nichols, M.D., Rochester, Minn.



The various chemotherapeutic agents are of value in the treatment of certain medical conditions and are of no value in the treatment of many others. The indications, contraindications and toxic reactions of the various chemotherapeutic agents should be thoroughly understood. Bacteriologic considerations are of utmost importance in the use of these agents.

3:00 p. m. View of Exhibits. Arena, Municipal Auditorium.
3:30 p. m. Chemotherapy and Antibiotic Therapy in Sphilis, G. V. Stryker, M.D., and Manuel Green, M.D., St. Louis.
4:00 p. m. Discussion opened by:
Dan G. Stine, M.D., Columbia.
J. William Fleming, Jr., M.D., Moberly.
Kenneth Glover, M.D., Mount Vernon.
5:30 p. m. Alumni and Fraternity Cocktail Party. Hotel President.
8:00 p. m. Smoker and Entertainment, Jackson County Medical Society, Host. Hotel President.

General Meeting

Wednesday, April 2, 1947, 9:00 a. m.—Little Theater, Municipal Auditorium

Symposium on Nutritional Deficiencies

9:00 a. m. Nutritional Deficiencies as a Cause of Disease, Wendell N. Griffith, Ph.D., St. Louis.

Malnutrition may result from a specific deficiency of an individual nutrient, as in scurvy or in simple iron anemia, but its more common occurrence is associated with multiple dietary inadequacies. The importance of a balanced mixture of essential nutrients and of sources of energy has been emphasized recently in a striking fashion by the good and bad nutritional status of large population groups forced to exist on unusual rations due to the catastrophe of war. The re-evaluation of the influence of calories and of protein on health and the investigation of the possible role in man of the many new vitamins known to be indispensable in other species illustrate current trends in nutritional science. Acute starvation, prolonged malnutrition, the relation of amino acids and of "labile methyl" to hepatic function, and the effect of folic acid in macrocytic anemias will be discussed.

9:30 a. m. Nutritional Diseases, William Middleton, M.D., Madison, Wis.



In the past, warfare has been attended by a greater attrition of man-power from disease than from trauma. A reversal of this situation obtained in the European Theater of Operations to make it a surgical rather than a medical war. Furthermore, the high command had confidence in the professional mission of medical officers. Hence, in all echelons unusual opportunities for clinical studies were afforded. Largely through the improved measures of prevention, major epidemics were averted. Notable instances of the control of infectious diseases, for example, typhoid fever, typhus fever and tetanus, are cited. The application of chemoprophylaxis in malaria and bacilliary dysentery is discussed. The recurring problems in the diagnosis and treatment of other infectious diseases are covered by citation of personal experiences. Particular attention is paid to the contribution of the sulphonamides and antibodies in the improved medical record of World War II.

10:00 a. m. Some Nutritional Pitfalls in General Hospitals, Garfield G. Duncan, M.D., Philadelphia, Pa.
10:30 a. m. View of Exhibits. Arena, Municipal Auditorium.
11:00 a. m. Psychosomatic Lesions and Diagnostic Evaluations.
Edwin Gildea, M.D., St. Louis.

Thomas French, M.D., Chicago.
George Saslow, M.D., St. Louis.

General Meeting

Wednesday, April 2, 1947, 1:00 p. m.—Little Theater, Municipal Auditorium

Symposium on Industrial Health

Vincent T. Williams, M.D., Kansas City, Moderator

1:00 p. m. Importance of Industrial Health to Our Nation, Mr. Howard Strong, Washington, D. C.
1:20 p. m. Pitfalls for the Physician in Medico-Legal Cases, John Madden, LL.D., Kansas City.
1:40 p. m. The National and State Industrial Health Program, Mr. Scott Johnson, Jefferson City.
2:00 p. m. Discussion opened by:
C. Rush McAdam, M.D., St. Louis.
Rial R. Oglevie, M.D., Kansas City.
2:30 p. m. House of Delegates. Little Theater, Municipal Auditorium.

MOTION PICTURES

Monday, March 31, 1947, 9:00 a. m.—Arena, Municipal Auditorium

9:00 a. m. Action of the Valves of the Heart, Cameron Heartometer Company.
9:25 a. m. Bacteriostatic Action of Progonasyl, The Progonasyl Company.
9:40 a. m. Riboflavin Deficiency, The Eli Lilly Company.
10:20 a. m. Allergy, Mead Johnson & Company.
11:05 a. m. Testicular Deficiency, Schering Corporation.
11:30 a. m. Hygeia—The Safe Nursing Bottle, The Hygeia Nursing Bottle Co.
4:00 p. m. Myasthenia Gravis, Hoffman-La Roche, Inc.
4:20 p. m. Intravenous Anesthesia With Pentothal Sodium, Abbott Laboratories.
4:45 p. m. Treatment of Gonorrheal Cervicitis, Irwin, Neisler & Company.

SCIENTIFIC EXHIBITS

Arena, Municipal Auditorium

Plastic Surgery Procedures Requiring But One Operation, James Barrett Brown, M.D., Louis T. Byars, M.D., Frank McDowell, M.D., Minot P. Pryor, M.D., St. Louis.
Some Common and Uncommon Disorders of the Heart, F. Stanley Morest, M.D., and D. J. Sienknecht, M.D., Kansas City.
Fuller-Albright Syndrome, Robert O'Brien, M.D., St. Louis.
Activities of a Radio Program, Jackson County Medical Society, Kansas City.
An Industrial Health Program for the County Medical Society, Committee on Industrial Health.
Missouri Bureau for the Blind, Jefferson City, Committee on Conservation of Eyesight.
Missouri School for the Blind, St. Louis, Committee on Conservation of Eyesight.
Glaucoma, National Society for the Prevention of Blindness.
Venereal Disease Case Finding, Treatment and Control, Committee on Control of Venereal Disease.
Dietetics in the Spotlight, The Greater Kansas City Dietetic Association.

DELEGATES, 1947

County	*Delegate*	*Alternate*
Andrew.....		
Audrain.....		
Barry-Lawrence-Stone	G. W. Newman, Cassville	R. R. Donley, Monett
Barry-Lawrence-Stone	Kenneth Glover, Mt. Vernon	Charles Hellweg, Mt. Vernon
Barry-Lawrence-Stone	H. L. Kerr, Crane	Fred Wommack, Crane
Barton-Dade	C. E. Duckett, Lamar	
Barton-Dade	F. H. Birsner, Lockwood	
Bates	A. L. Hansen, Appleton City	John M. Cooper, Butler
Benton	James A. Logan, Warsaw	T. S. Reser, Cole Camp
Boone	A. R. McComas, Sturgeon	M. Pinson Neal, Columbia
Buchanan	Paul Forgrave, St. Joseph	

DELEGATES

County	*Delegate*	*Alternate*
Buchanan	A. B. McGlothlan, St. Joseph	
Buchanan	Cabray Wortley, St. Joseph	
Butler	C. A. Post, Poplar Bluff	F. J. Biggs, Jr., Poplar Bluff
Caldwell-Livingston	G. W. Carpenter, Chillicothe	J. A. Conrad, Chillicothe
Caldwell-Livingston	Clifford H. Wilbur, Polo	G. S. Dowell, Braymer
Callaway	E. R. Gish, Fulton	George F. Wood, Fulton
Camden	G. T. Myers, Macks Creek	E. G. Claiborne, Camdenton
Cape Girardeau	Frank Hall, Cape Girardeau	Raymond A. Ritter, Cape Girardeau
Carroll	John H. Platz, Carrollton	Carl Reed, Carrollton
Carter-Shannon		
Carter-Shannon		
Cass	David S. Long, Harrisonville	Edgar M. Griffith, Harrisonville
Chariton-Macon-Monroe-Randolph	G. W. Hawkins, Salisbury	F. L. Harms, Salisbury
Chariton-Macon-Monroe-Randolph	H. E. Erni, Macon	E. E. Eggleston, Macon
Chariton-Macon-Monroe-Randolph	F. A. Barnett, Paris	George M. Ragsdale, Paris
Chariton-Macon-Monroe-Randolph	J. W. Fleming, Jr., Moberly	T. S. Fleming, Moberly
Christian	S. D. Roper, Ozark	C. A. Spears, Billings
Clay	Glenn Hendren, Liberty	A. E. Spelman, Smithville
Clinton		
Cole	John W. McHaney, Jefferson City	H. B. Stauffer, Jefferson City
Cooper	G. W. Winn, Boonville	T. C. Beckett, Boonville
Dallas-Hickory-		



DELEGATES

County	*Delegate*	*Alternate*
Polk	G. C. Plummer, Buffalo	Loren A. Glasco, Urbana
Dallas-Hickory-Polk	G. G. Robinson, Humansville	John B. O'Brien, Bolivar
Dallas-Hickory-Polk		
DeKalb		
Dunklin	E. L. Spence, Kennett	S. E. Mitchell, Malden
Franklin	Frank G. Mays, Washington	H. M. Denny, Union
Greene	W. S. Sewell, Springfield	S. F. Freeman, Springfield
Greene	F. T. H'Doubler, Springfield	E. J. Schwartz, Springfield
Greene	T. E. Ferrell, Springfield	A. D. Vail, Springfield
Grundy-Daviess	C. H. Cullers, Trenton	O. F. Duffy, Trenton
Grundy-Daviess	Edward Nixon, Gallatin	
Harrison		
Henry	G. S. Walker, Clinton	R. S. Hollingsworth, Clinton
Holt		
Howard	William J. Shaw, Fayette	M. P. Leech, Fayette
Jackson	A. N. Altringer, Kansas City	
Jackson	A. E. Eubank, Kansas City	
Jackson	O. S. Gilliland, Kansas City	
Jackson	R. Lee Hoffmann, Kansas City	
Jackson	J. H. Jennett, Kansas City	
Jackson	Fred B. Kyger, Kansas City	
Jasper	R. M. James, Joplin	O. T. Blanke, Joplin
Jasper	B. E. DeTar, Joplin	R. C. Newkirk, Joplin
Jefferson	George Hopson, DeSoto	J. F. Rutledge, Crystal City
Johnson	R. L. Cooper, Warrensburg	O. H. Damron, Warrensburg
Laclede		
Lafayette	E. M. Moore, Jr., Higginsville	C. T. Ryland, Lexington
Lewis-Clark-Scotland	J. R. Bridges, Kahoka	
Lewis-Clark-Scotland	P. W. Jennings, Canton	
Lewis-Clark-Scotland		
Lincoln	J. C. Creech, Troy	
Linn		
Marion-Ralls	B. L. Murphy, Hannibal	Harry L. Greene, Hannibal
Marion-Ralls	J. E. Brown, Perry	
Mercer	A. S. Bristow, Princeton	C. J. Laws, Princeton
Miller	W. L. Allee, Eldon	
Mississippi	C. C. Presnell, Charleston	George Whitaker, East Prairie
Moniteau	J. P. Burke, Jr., California	H. R. Popejoy, California
Montgomery	S. J. Byland, Wellsville	E. J. T. Andersen, Montgomery City
Morgan	J. L. Washburn, Versailles	W. G. Gunn, Versailles
New Madrid	John J. Killion, Portageville	S. M. Sarno, Morehouse
Newton		
Nodaway-Atchison-Gentry-Worth	Charles D. Humberd, Barnard	
Nodaway-Atchison-Gentry-Worth	Emmett B. Settle, Rock Port	
Nodaway-Atchison-Gentry-Worth	S. E. Simpson, Stanberry	
Nodaway-Atchison-Gentry-Worth	Pren J. Ross, Grant City	
North Central—		
Adair	Henry M. Humphrey, Brashear	A. F. Miller, Kirksville
Schuyler	Henry E. Gerwig, Downing	Ida M. Nulton, Lancaster
Knox	Frank E. Luman, Edina	U. R. McReynolds, Knox City
Sullivan	Warner Herington, Green City	J. S. Montgomery, Milan
Putnam	Pearl V. Hart, Coatesville	J. H. Holman, Unionville
Pemiscot	J. B. Luten, Caruthersville	W. R. Limbaugh, Hayti
Perry	William H. Bailey, Perryville	O. J. Miller, Perryville
Pettis	A. J. Campbell, Sedalia	W. A. Beckemeyer, Sedalia
Phelps-Crawford-Dent-		



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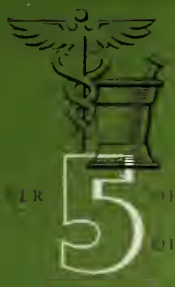
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DELEGATES

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Pulaski	R. E. Breuer, Newburg	M. K. Underwood, Rolla
Phelps-Crawford-Dent-Pulaski	A. H. Horne, Steelville	W. F. Irwin, Leasburg
Phelps-Crawford-Dent-Pulaski	M. M. Hart, Salem	G. E. Joseph, Salem
Phelps-Crawford-Dent-Pulaski	William R. Lytle, Waynesville	Cyrus Mallette, Crocker
Pike		
Platte		
Ray		
St. Charles	Vincent A. Schneider, St. Charles	Orville W. Towers, St. Charles
St. Francois-Iron-Madison Washington-Reynolds	H. M. Roebber, Bonne Terre	M. T. Haw, Jr., Bonne Terre
St. Francois-Iron-Madison Washington-Reynolds	R. E. Harland, Ironton	Ben M. Bull, Ironton
St. Francois-Iron-Madison Washington-Reynolds	W. H. Barron, Fredericktown	Marvin Grossman, Fredericktown
St. Francois-Iron-Madison Washington-Reynolds	J. P. Yeargain, Irondale	J. L. Thurman, Potosi
St. Francois-Iron-Madison Washington-Reynolds	Andrew Bugg, Ellington	J. R. Prytle, Centerville
Ste. Genevieve	A. E. Sexauer, Ste. Genevieve	R. C. Lanning, Ste. Genevieve
St. Louis	R. B. Denny, Creve Coeur	
St. Louis	Roy A. Walther, Sr., Overland	
St. Louis	Oscar P. Hampton, Jr., St. Louis	
St. Louis	Arthur W. Westrup, St. Louis	
St. Louis	Richard A. Sutter, St. Louis	
St. Louis City	Victor E. Scherman, St. Louis	Leslie D. Cassidy, St. Louis
St. Louis City	E. Lee Dorsett, St. Louis	Roland S. Kieffer, St. Louis
St. Louis City	Robert E. Schlueter, St. Louis	Robert D. Woolsey, St. Louis
St. Louis City	Jerome I. Simon, St. Louis	Grayson Carroll, St. Louis
St. Louis City	Leo J. Hartnett, St. Louis	James L. Mudd, St. Louis
St. Louis City	Louis H. Kohler, St. Louis	Clinton W. Lane, St. Louis
St. Louis City	Curtis H. Lohr, St. Louis	John F. Patton, St. Louis
St. Louis City	Oliver Abel, Jr., St. Louis	Edgar W. Spinzig, St. Louis
St. Louis City	Edwin C. Ernst, St. Louis	George A. Carroll, St. Louis
St. Louis City	M. J. Pulliam, St. Louis	Omer E. Hagebusch, St. Louis
St. Louis City	Henry P. Thym, St. Louis	E. Lawrence Keyes, St. Louis
St. Louis City	Rogers Deakin, St. Louis	Arthur W. Neilson, St. Louis
St. Louis City	Armand D. Fries, St. Louis	Louis N. Berard, St. Louis
St. Louis City	Theodore Hanser, St. Louis	James Macnish, St. Louis
St. Louis City	R. Emmet Kane, St. Louis	Loyola F. Hayden, St. Louis
St. Louis City	Alphonse McMahon, St. Louis	H. Rommel Hildreth, St. Louis
St. Louis City	Charles L. Klenk, St. Louis	Wm. H. Norton, St. Louis
St. Louis City	William B. Kountz, St. Louis	F. G. Pernoud, Jr., St. Louis
St. Louis City	A. N. Arneson, St. Louis	Raoul L. Ramos, St. Louis
St. Louis City	Frank R. Bradley, St. Louis	Paul F. Fletcher, St. Louis
St. Louis City	F. G. Pernoud, St. Louis	Sam J. Merenda, St. Louis
St. Louis City	P. C. Schnoebelen, St. Louis	Leo V. Mulligan, St. Louis
St. Louis City	Edwin J. Schisler, St. Louis	Bernard L. Sinner, St. Louis
St. Louis City	Jacob G. Probstein, St. Louis	Maxwell Fineberg, St. Louis
St. Louis City	Edward P. Buddy, St. Louis	Ben Senturia, St. Louis
St. Louis City	Carl F. Vohs, St. Louis	Leo Gottlieb, St. Louis
Saline	George A. Aiken, Marshall	Robert C. Haynes, Marshall



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NUMBER 5 OF A SERIES HONORING THE CONTRIBUTIONS OF EMINENT PERSONALITIES OF MEDICINE AND PHARMACY

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Shelby		
South Central—		
Howell	C. F. Callihan, Willow Springs	Rollin H. Smith, West Plains
Oregon	C. W. Cooper, Thayer	F. A. Barnes, Thayer
Texas	Garrett S. Hogg, Jr., Cabool	R. T. Harsh, Houston
Wright	R. A. Ryan, Mountain Grove	J. R. Mott, Hartville
Douglas	M. C. Gentry, Ava	R. M. Norman, Ava
Stoddard		
Taney		
Vernon-Cedar	C. Braxton Davis, Nevada	Roy W. Pearse, Jr., Nevada
Vernon-Cedar	William B. Richter, Stockton	Norman Claybourn, Eldorado Springs
Webster	E. G. Beers, Seymour	C. R. Macdonnell, Marshfield

TECHNICAL EXHIBITS

Municipal Auditorium

ABBOTT LABORATORIES, NORTH CHICAGO. BOOTH 1.

You are most cordially invited to visit the exhibit that has been prepared for this meeting. Members of the Abbott professional staff will welcome an opportunity to discuss newer developments in the antibiotic, anticonvulsant, anesthetic, allergenic, sulfonamide, hematinic, hormone, vitamin and other fields.

THE W. E. ISLE COMPANY, 1121 GRAND AVE., KANSAS CITY. BOOTH 2.

The W. E. Isle Company has on display its complete line of artificial limbs, orthopedic appliances, surgical supports, maternity belts, elastic hosiery and trusses. Our representatives will discuss with you these appliances, many of which you frequently prescribe. They will welcome your examination of Isle products.

THE MEDICAL PROTECTIVE COMPANY, FORT WAYNE. BOOTH 3.

The Medical Protective Company's representative, thoroughly trained in Professional Liability underwriting, invites you to visit exhibit Booth 3. He is entirely familiar with the principles of the reciprocal rights and duties of a doctor and patient and with the circumstances peculiar to that relationship. He will be glad to explain how his Company meets the exacting requirements of adequate liability protection, which are peculiar to the Professional Liability field.

WINTHROP CHEMICAL COMPANY, INC., 170 VARICK STREET, NEW YORK. BOOTH 4.

Winthrop Chemical Company, Inc., extends a cordial invitation to visit its booth where representatives are on hand to discuss the latest therapeutic contributions made by this firm. Featured are Aralen, new colorless antimalarial specific; Demerol, analgesic, spasmolytic and sedative and Creamalin, non-alkaline antacid.

LANTEEN MEDICAL LABORATORIES, INC., 900 N. FRANKLIN ST., CHICAGO. BOOTH 5.

This manufacturer is exhibiting the improved Lanteen Flat Spring Diaphragm, natural and synthetic estrogenic hormone products, including Estrogel, Hexypheen and Hexestrol (Lanteen), as well as Bi-Teens products. Included in their Vi-Teens display are Pi-Teens Homogenized Vitamins and Ferrelex. Mr. Ivan L. Hubbs, who is in charge of the exhibit, will be pleased to discuss these products with you.

SHARP & DOHME, INC., PHILADELPHIA. BOOTH 6.

Sharp & Dohme extends a cordial welcome to all visitors at Booth 6. New antibiotic preparations including "Prothricin" nasal decongestant and "Tyroderm," tyrothricin cream are being featured along with "Sulfathalidine" and "Sulfasuxidine," intestinal bacteriostatic agents. "Lyocyte" powder, dried human blood cells and "Lyovac" Normal Human Plasma complete the items on exhibit.

THE BORDEN COMPANY, 350 MADISON AVENUE, NEW YORK. BOOTH 7.

Come to Borden's Booth 7 and refresh your memory on our Prescription Products. See Biolac, a liquid modified milk for infant feeding; Dryco with its high protein, low-fat content for formula adjustment; Mull-Soy, a liquid hypo-allergenic soy food for your milk allergic patients; powdered whole milk Klim, a dependable, uniform source of whole milk; the improved milk sugar, Beta Lactose, for corbohydrate supplementation; and the powdered Merrell-Soule Protein and Lactic Acid Milks for special feeding cases.

BILHUBER-KNOLL CORP., CRANE STREET, ORANGE, NEW JERSEY. BOOTH 8.

For the latest on the fine medicinal chemicals of the Bilhuber-Knoll Corp., visit Booth 8. The display includes the antispasmodic, Octin; sedative and mild hypnotic, Bromural; analgesic and cough sedative, Dilaudid; analeptic and anti-anoxiant, Metrazol; and myocardial stimulant and diuretic, Theocalcin, as well as other dependable prescription chemicals. They are prescribed alone or in combination to meet the individual patient's requirement.

UNITED MEDICAL EQUIPMENT CO., 1114 GRAND AVE., KANSAS CITY. BOOTHS 9 AND 10.

United Medical Equipment Company of Kansas City is displaying and demonstrating the Cardiotron. Actual electro-cardiograms are shown on an oscilloscope and simultaneously projected from the permanent scratch proof Cardiotron paper in this latest direct recording electro-cardiograph.

PARKE, DAVIS & COMPANY, DETROIT. BOOTH 11.

Representatives of Parke, Davis & Co., well informed concerning progress in Pharmaceutical Research and desirous of presenting new advancements to you, are in attendance at our Technical Exhibit to discuss the nature and employment if new and present products. Displayed are such outstanding products as Theelin, Mapharsen and Adrenalin Preparations. The latest type of Biologicals are on display. Likewise, Penicillin and other therapeutic agents of antibiotic, biological and chemotherapeutic interest are shown. We sincerely invite your visit to this exhibit.

ORTHO PHARMACEUTICAL CORPORATION, RARITAN, NEW JERSEY. BOOTH 12.

The Ortho Pharmaceutical Corporation are exhibiting their well-known line of Gynecic Pharmaceuticals. Samples and literature may be secured—they will be glad to have you visit Booth 12.

SCHERING CORPORATION, 2 BROAD STREET, BLOOMFIELD, NEW JERSEY. BOOTH 14.

The Schering booth features the potent oral estrogenic hormone, Estinyl, (ethinyl estradiol) the oral progestin, Pranone (anhydrohydrozy-progesterone) and the oral androgen, Oreton-M (methyltestosterone). The well-known parenteral hormones, Oreton (Testosterone propionate), Progynon-B (estradiol benzoate), Proluton (Progesterone), and Crotate (desocycorticosterone acetate) are also displayed. The new effective treatment for ophthalmic infections, Sodium Sulfacetimide Solution 30 per cent, will be of interest as will be the clinically safer sulfonamide combination Combisul-TD and the radiographic media Priodax and Neo-Iopax. Schering Professional Service Representatives are present to welcome physicians' inquiries.

REED & CARNRICK, JERSEY CITY. BOOTH 15.

Since 1860 the high ethical and scientific ideals of the Reed & Carnrick laboratories have continued to merit the confidence and support of the American medical profession. Scientific research and rigid technical supervision assure the potency, clinical efficacy and economy of all medicinal agents bearing the name of Reed & Carnrick.

BRISTOL LABORATORIES, INC., 630 FIFTH AVENUE, NEW YORK. BOOTH 16.

Bristol Laboratories, Inc., have on display many of its penicillin and antibiotic products as well as many pharmaceuticals. Mr. Pilkington is on hand to greet you at the booth.

FARNSWORTH LABORATORIES, 28 EAST JACKSON BLVD., CHICAGO. BOOTH 17.

Mr. Trujillo and Mr. Farnsworth will be happy to see you at the Annual Session and talk with you about the use of our injectable medications, such as—Colmetanese, Vitamin E, High-B-Six, Aqua-Estro, Quinocaine, C. I. C. Literature covering our preparations may be obtained upon request.

PRODUCERS CREAMERY CO., 555 W. PHELPS ST., SPRINGFIELD, MO. BOOTH 18.

The Producers Creamery Company's exhibit features Daricraft Homogenized Evaporated Milk as a food for infants. Baby Books and other literature will be distributed to doctors. Mr. G. J. Swearingen is in charge of the exhibit.

AUREX KANSAS CITY CO., 1016 WALNUT STREET, KANSAS CITY. BOOTH 19.

G. D. SEARLE & CO., P. O. BOX 5110, CHICAGO. BOOTH 20.

G. D. Searle & Company are showing a number of products of Searle Research which have contributed so much to the armamentarium of the physician, including Searle Aminophyllin, Metamucil, Ketochol, Floraquin, Diodoquin, Pavatrine, Pavatrine with Phenobarbital, Gonadophysin, and Tetrathione. Featured are the new Aminophyllin Supposicones, the Searle brand of Aminophyllin Suppositories, which remain stable at temperatures up to 130°, but which liquify readily under conditions of use.

NATIONAL X-RAY SURVEYS, ORANGE, N. J. BOOTH 23.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, 30 ROCKEFELLER PLAZA, NEW YORK. BOOTH 24.

The Lederle Laboratories, are exhibiting Folvite, the new synthetic folic acid, effective in the treatment of Sprue, Macrocytic Anemia of Pregnancy, Gastrointestinal Anemias and Pellagrous Macrocytic Anemia; Folvron, Folvite (folic acid) and ferrous sulfate capsules. Folvite (folic acid) one milligram and crude liver, one unit per cc. injectible; Folvite (folic acid) five milligram and fifteen unit refined liver per cc. injectible. Lederle represntatives will welcome the opportunity to acquaint those in attendance at the convention with this new product, and supply the latest literature available.

CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, NEW JERSEY. BOOTH 25.

Ciba Pharmaceutical Products, Inc., invite you to visit their display for latest information on Pyribenzamine, the effective antihistaminic and anti-allergic compound. Also displayed will be Privine HCl, a long-lasting nasal vasoconstrictor; Metandren Linguets, the most potent orally active androgen available in suitable form for sublingual absorption; Trasentine, a well-tolerated antispasmodic and Trasentine-Phenobarbital, a combination of Trasentine and the well-known sedative, Phenobarbital. For samples and literature, see the representatives in attendance, who will be glad to answer any questions you may have.

J. B. LIPPINCOTT COMPANY, PHILADELPHIA. BOOTH 26.

J. B. Lippincott Company presents a complete line of Lippincott Selected Professional Books and Journals. Be sure to see the current issue of "American Practitioner"—the monthly medical journal designed to shorten the lag between experiment and practice. Titles of new books and new editions include: "Dermatology and Syphilology," "Signs and Symptoms—Their Clinical Interpretation," "Diagnosis in Daily Practice," "Diabetic Care in Pictures," "Cardiovascular Diseases," "Color Atlas of Hematology," "Essentials of Endocrinology," "Diseases of the Nose and Throat," "Uterine Contractility in Pregnancy."

Dumas-Wilson & Co., 4821 Fairview Ave., St. Louis. Booth 27.

Displayed is a complete line of Primary Yeast products offered in Chips, Powder, Tablets and Liquid. Amino Acids for oral use are shown—Amateen Concentrate, a Primary Yeast hydrolysate of high potency and Amalac, a palatable product supplying both solublized and whole protein. Also, special Formulae for preoperative and postoperative patients, and dietary supplements.

Pitman-Moore Company, Indianapolis. Booth 28.

The Pitman-Moore exhibit features a number of important Council-Accepted products. Executives from the Company's Kansas City Branch and its representatives in the state are on hand to greet their friends and acquaintances in the profession, and members of the scientific staff will be in attendance to answer technical questions and discuss recent scientific advances.

Nutrition Research Laboratories, 4210 Peterson Avenue, Chicago. Booth 29.

Nutrition Research Laboratories are displaying Pendarvon Granules, a source of amino acids and vitamins of the B complex, a new approach to palatability in the field of protein therapy. This product was announced in February and is gaining widespread attention from members of the medical profession. Featured also is Ertron—Steroid Complex—Whittier in both oral and parenteral forms. Latest scientific and clinical information continues to demonstrate the effectiveness of this drug in the treatment of chronic arthritis. In addition, Infron Pediatric, vitamin D—Whittier Process, is displayed as well as Bezon, in the new improved capsule form, providing adequate intake of factors of the vitamin B complex as well as vitamin C. Our representatives welcome the opportunity of meeting members and guests of the Association.

C. B. Fleet Co., 921-927 Commerce Street, Lynchburg, Va. Booth 30.

C. B. Fleet Co., Inc., welcomes you to the Technical Exhibits, and cordially invites you to Booth 30 where it is proud to exhibit Phospho-Soda (Fleet), the one product of its manufacture. Phospho-Soda (Fleet) has come to occupy a significant position wherever sodium phosphates or other salines are indicated. It is a pure, stable, acqueous concentrate of the two U. S. P. Sodium Phosphates with a history of more than fifty years of manufacture and ethical distribution. Should you not be thoroughly acquainted with Phospho-Soda (Fleet), the representative at the booth will discuss with you the chemistry, advantages and possible application of Phospho-Soda (Fleet) in your practice.

H. G. Fischer & Co., 2323-2345 Wabansia Ave., Chicago. Booth 31.

Visitors to the Annual Sesison of the Missouri State Medical Association are cordially invited to visit our Fischer Display Booth, to inspect the new units of Fischer apparatus being shown, along with the modern trends in shockproof x-ray and electro-surgical-medical equipment construction. Fischer units of apparatus are characterized by precision design and convenient, efficient operation. Members of the Fischer organization are present at all hours to answer questions and to demonstrate outstanding features of Fischer equipment and performance. You will be welcome at our Fischer Booth 31.

Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, New York. Booth 32.

Burroughs Wellcome & Co. cordially invite physicians to their exhibit of a representative group of fine pharmaceuticals and chemicals. Of particular interest are "Nutragest," the palatable, dietary compound containing the amino acids, important minerals, vitamins and carbohydrates; Digoxin, a pure, stable, crystalline glycoside of Digitalis lanata, combining uniform potency with rapidity of action; "Wellcome" Benzyl Benzoate Emulsion, the 24-hour treatment for scabies and pediculosis capita; and "Lubafax" brand Surgical Lubricant.

Philip Morris & Co. Ltd., 119 Fifth Ave., New York. Booth 33.

Philip Morris & Company are demonstrating the method by which it was found that Philip Morris Cigarette, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject, and problems on the physiological effects of smoking.

F. A. Davis Company, 1914 Cherry St., Philadelphia. Booth 34.

We shall be pleased to have you examine these and other new Davis publications at Booth 34: Pillmore, "Clinical Radiology"; Litchfield-Dembo, "Therapeutics of Infancy and Childhood"; Goldberg, "Clinical Tuberculosis"; McCrea, "Clinical Cystoscopy"; Stroud, "Cardiovascular Disease"; Lederer, "Ear, Nose and Throat"; Piersol, "Cyclopedia of Medicine and Surgery"; Alpers, "Neurology"; Reimann, "Treatment in General Medicine"; Loewenberg, "Medical Diagnosis"; Murphy, "Acute Medical Disorders"; McPheeters, "Varicose Veins and Hemorrhoids"; McCrea, "Urology"; and Taber, "Medical Dictionary."

V. Mueller & Company, 408 South Honore Street, Chicago. Booth 35

The V. Mueller & Company is displaying a few new surgical instruments along with other Mueller equipment and instrument specialties. You can be sure your visit to their exhibit will be very worth while. Messrs. R. F. Poston and E. J. Marlotte are in attendance.

M & R Dietetic Laboratories, Inc., Columbus, Ohio. Booth 36.

M & R Dietetic Laboratories, Inc., are displaying Similac, a food for infants deprived either partially or entirely of breast milk. Messrs. A. E. Brown and B. C. Palmer will appreciate the opportunity to discuss the merit and suggested application for both the normal and special feeding cases.

Lea & Febiger, 600 Washington Square, Philadelphia. Booth 37.

At Booth 37 Lea & Febiger are exhibiting among their new works and new editions Joslin's "Treatment of Diabetes Mellitus," Cushny's "Pharmacology & Therapeutics " Wintrobe's "Clinical Hematology," Davis' "Neurological Surgery," Soffer's "Diseases of the Adrenals," Bell's "Renal Diseases," Wesson's "Urologic Roentgenology," Scott and Van Wyck's "Obstetrics & Gynecology," MacKee & Cipolarro's "X-Rays and Radium" and other standard works.



to combat

depression characterized by

"chronic fatigue"

Depressed patients ". . . suffering from psychomotor inhibition complain of feeling tired, of not being able to get started on their daily tasks, and of an abnormal inclination to procrastinate. They make up their minds that they are going to do a certain thing but they never seem to get to it. Everything seems too big for them . . ."*

In the above quotation, Kamman emphasizes "chronic fatigue" as a dominant symptom in the type of depression most frequently encountered in daily practice.

Benzedrine Sulfate is particularly valuable in the presence of "chronic fatigue". It will, in most cases, help to overcome the depression and thus enable the patient to make a sincere and constructive effort to surmount his difficulties.

*Kamman, G. R.: Fatigue as a Symptom in Depressed Patients, Journal-Lancet 65:238 (July) 1945.

b

Tablets and Elixir

benzedrine sulfate

(*racemic amphetamine sulfate, S.K.F.*)

Smith, Kline & French Laboratories, *Philadelphia, Pa.*

Not to be Sneezed at

In the field of allergy, cosmetics are literally and figuratively not to be sneezed at, because they may be a causative or contributing agent in allergic cases. That is why when there is a history of allergy we suggest that patch tests be made with those of our products the subject is using or contemplates using. If they test positive, further testing with their constituents is indicated to determine the offending agents. These found, we frequently can modify our formulas to suit the subject's requirements. The patch test is generally considered best for testing cosmetics because it most closely approximates the conditions under which they are normally used.

While our products are free from so-called common cosmetics allergens, such as orris root and rice starch, we feel it should be made clear that any of their normally innocuous ingredients might be allergenic to the allergic individual. It is our practice to write our patrons a letter to this effect when a history of allergy is involved.

It is our experience that many persons with allergic constitutions cannot tolerate scented cosmetics; therefore we routinely recommend and select unscented products when there is a history or suspicion of allergy. This practice is not to imply or suggest that the subject is sensitized to perfume; it is solely to safeguard against the possibility.

In specific cases of allergy or suspected allergy, when the subject is using or contemplates using our products, we are pleased on his request to send her doctor the involved raw materials for patch testing, also such information concerning our products as may have a bearing on the case.

Since in the light of present knowledge it is not possible, save in specific cases, to make non-allergenic cosmetics, we believe the cosmetic requirements of the allergic individual should be considerd by her doctor in the light of the formulas and general characteristics of the products she is using or contemplates using.

Luzier's Fine Cosmetics & Perfumes are selected to suit your practical cosmetics requirements and aesthetic preferences. They are made available to you by Cosmetics Consultants who assist you with the selection of suitable Luzier products and show you how to apply them to achieve the most becoming cosmetic effect.

LUZIER'S, INC.,

Makers of Fine Cosmetics & Perfumes

KANSAS CITY, MISSOURI

A. S. Aloe Company, 1831 Olive St., St. Louis. Booths 38 and 39.

The A. S. Aloe Company has on exhibit in its Booths 38 and 39 a complete set of our new Steeline Treatment Room Furniture, and we are in position to make prompt delivery at this time. We also have a vast amount of Government Surplus items at attractive prices, a saving to you of up to 75 per cent, and we recommend that you pay our booth a visit and take advantage of the attractive offers while they last.

The C. V. Mosby Company, 3207 Washington Blvd., St. Louis. Booth 40.

New books and recent editions being displayed at Booth 40 by the C. V. Mosby Company include Clendening-Hashinger "Methods of Diagnosis," Ackerman-Regato "Cancer," Treiger "Atlas of Cardiac Diseases," Rubin "Uterotubal Insufflation," Mobley "Synopsis of Operative Surgery," Key-Conwell "Fractures, Dislocations and Sprains," and Tassman "Eye Manifestations of Internal Diseases." Your examination of any of these, as well as the many other timely texts being shown, is welcomed.

Eli Lilly and Company, Indianapolis. Booth 41.

The Lilly exhibit this year features an interesting presentation on the heart and a discussion on cardiac drugs. Many Lilly products are on display; representative literature is available. The attending Lilly medical service representatives will be pleased to assist visiting physicians whenever possible.

Mead Johnson & Company, Evansville. Booths 42 and 43.

"Servamus Fidem" means "We are Keeping the Faith." Almost every physician thinks of Mead Johnson & Company as the maker of Dextri-Maltose, Pablum, Oleum Percomorphum, and other infant diet materials (including the new precooked oatmeal cereal, Pabena). But not all physicians are aware of the many helpful services this progressive Company offers physicians. A visit to Booths Nos. 42 and 43 will be time well spent.

Eaton Laboratories, Inc., Norwich, New York. Booths 44 and 45.

Eaton Laboratories, Inc., are exhibiting several pharmaceutical preparations of interest to the physician. Furacin Soluble Dressing containing a new chemotherapeutic agent, and Furacin (brand of nitrofurazone), are being exhibited. This compound is a new antibacterial agent for the treatment of wound and surface infections. Clinical evaluation throughout the last two and one-half years indicates a wide field of use. Our representatives will be pleased to discuss Furacin Soluble Dressing with all physicians. Literature and samples are available at the Eaton Laboratories, Inc., Exhibit.

The Jones Metabolism Co., 3905 Olive St., St. Louis. Booth 46.

Fred W. Searle, District Manager for Jones Metabolism Company in Missouri is on hand to discuss any questions of technic or operation of the new Jones Motor Basal Unit. New Machines will be available for prompt delivery during convention and any orders placed at convention will be shipped and installed the following week. Headquarters for Jones Metabolism Company in Missouri are located at 3905 Olive Street, St. Louis 8, Missouri.

Wm. P. Poythress & Co., Inc., Richmond, Va. Booth 47.

A most cordial welcome awaits you at Booth 47, the exhibit space of Wm. P. Poythress & Company, Inc., Manufacturing Ethical Pharmaceutists of Richmond, Va. Descriptive literature and trial supplies of such well-known Poythress specialty preparations as Solfoton, Antrocol, T C S, Uro-Phosphate, Panalgesic, Merpectogel and Bensulfoid will be available. Ray Smith, our St. Louis representative, and L. W. Norsworthy, our Kansas City representative, are in attendance.

Frederick Stearns & Company, Division of Sterling Drug Inc., Detroit. Booth 48.

Frederick Stearns & Company Division are represented by an exhibit which features Parenamine, Demerol, Fergon, Gastron, Pepsencia, and various Neo-Synephrine products including Neo-Synephrine Surgical. Representatives are on hand to discuss these products. Amino Acids are an interesting subject for all physicians and surgeons and the Stearns booth will be well worth a visit.

Camel Cigarettes, One Pershing Square, New York. Booths 49 and 50.

Camel Cigarettes in presenting a dramatic full color review of their recent medical research on smoking, as well as the details of the nationwide survey showing that "More Doctors Smoke Camels Than Any Other Cigarette." Another panel illustrates the absorption of nicotine in the respiratory tract. Representatives are present.

The Progonasyl Company, Tulsa. Booth 51.

Progonasyl is a unique Bacteriostatic preparation containing organic iodine in a neutral hydrophilic base of low viscosity. In wide clinical use by eminent Gynecologists and General Practitioners, it has proved highly effective in local relief of mucous membrane infections. The bacteriostatic action of Progonasyl is deeper than most antiseptics, since it abstracts moisture from the tissues and thereby desiccates the embedded organisms. When exposed to the moisture of mucous membranes, Progonasyl forms a colloid jell which exerts a prolonged bacteriostatic effect upon the underlying micro-organisms, lasting from seven to fifteen hours. Indications are: Specific and Non-specific Vaginitis, Post Conization and Cauterization, Cystitis, Proctitis and Post Rectal Surgery.

Otis E. Glidden & Co., Inc., 518 Davis Street, Evanston, Ill. Booth 52.

ZymenoL, a palatable emulsion containing Brewer's Yeast, provides a natural approach to effective bowel management, without irritant, habit-forming drugs or artificial bulkage. Teaspoonful dosage provides minimum liquid petrolatum intake, avoids leakage and assures negligible interference with fat soluble vitamin absorption. Your visit and inquiry is solicited. Literature and free trial supply on request.

Westinghouse Electric Corporation, 411 North Seventh St., St. Louis. Booth 53.

The Missouri Representatives of the Westinghouse Electric Corporation X-Ray Division will be in Booth 53 to welcome the various members of the Medical Association. They invite you to stop in and discuss any x-ray problems with them. They will be happy to explain to you the personal services offered by Westinghouse.

Goetze Niemer Company, St. Joseph. Booth 54.

Goetze-Niemer are giving initial showing among other things of the new Ritter Examining Table, thus bringing for the first time to the medical profession the superlative quality of Ritter products which have hitherto been available only for dentists and eye, ear, nose and throat specialists.

F. E. Young & Co., 422 East 75th Street, Chicago. Booth 55.

F. E. Young & Co. are displaying Sulf-A-Test, which is a ten second test to determine percentage of sulfa in urine. In addition to this display they are showing Young's Rectal Dilators. The Dilator set consists of four dilators, graduated in size and introduced in series as the anal sphincter becomes accustomed to dilation. Rectal dilation is used by physicians to treat certain cases of constipation, hemorrhoids, rectal neurosis, postoperatively, dyspareunia and other conditions which may arise due to a tight or spastic anal sphincter.

The Doho Chemical Corporation, 58 Varick Street, New York. Booth 56.

The makers of Auralcan are introducing at this Meeting, their new sulfa drug preparation, O-Tos-Mo-San, indicated in the treatment and control of chronic suppurative ears. Our representatives will be happy to explain, in detail, the workings of these medications and also to distribute our latest series of three (3) Anatomico-Pathologic Charts of the Ear, in color, suitable for framing.

The Hygeia Nursing Bottle Co., Buffalo. Booth 57.

You are cordially invited to visit Booth 57 to see the advantages of the new improved Hygeia Nursing Bottle Unit. Learn why prescribing the Hygeia unit—including bottle, nipples, and cap—will help mothers overcome feeding problems. Mr. Charles H. Clark is in attendance.

Hoffmann-La Roche, Inc., Roche Park, Nutley, New Jersey. Booth 58.

You are cordially invited to attend the Roche exhibit at the Missouri State Medical Association Annual Session. It will be well worth your while to drop in and glance briefly at the interesting exhibit on such clinically valuable drugs as Prostigmin, the versatile chollinergic stimulant; Ephynal Acetate, the stable, pure, well-tolerated vitamin E compound; Per-Os-Cillin, the dependable oral penicillin tablet; Syntropan, the non-narcotic well-tolerated antispasmodic; Syntrogel, the pleasant tasting, rapid acting, efficient antacid, and other products you may find of value in your practice. A staff of experienced Roche representatives are present to answer your questions and assist you in any possible way.

U. S. Vitamin Corporation, 250 East 43rd St., New York. Booth 59.

Full color illustrated brochure "Diagnosing Vitamin Deficiencies" together with professional samples and literature on VI-Syneral, Poly-B, VI-Litron, Hypervitam, Lipo-Heplex, Daisol, Desiver, Amiprote and others are available.

Pet Milk Sales Corporation, Arcade Bldg., St. Louis. Booth 60.

A complete display of material illustrating the time-saving Pet Milk services available to physicians. Specially trained representatives are in attendance to give you information about the production of Pet Milk and its use for infant feeding. Miniature cans will be given to physicians visiting the exhibit.

Holland-Rantos Company, Inc., 551 Fifth Ave., New York. Booth 61.

You are cordially invited to visit the Holland-Rantos Booth where on display are the nationally known and universally used Koromex contraceptive specialties. Besides the new Koromex Set Complete, which is a package combining the necessary items for complete contraceptive technic, there is the new Nylmerate Jelly, introduced only a short time ago and received enthusiastically for the treatment of trichomoniasis and vaginal discharges of a nonspecific origin. Representatives of the company are on hand to answer all questions. Samples of Nylmerate Jelly and Koromex Jelly are available, as are copies of the new physician's patient instruction chart.

Ames Company, Inc., Elkhart, Indiana. Booth 62.

Ames Co. is demonstrating technics for the detection of urine-sugar, albumin and occult blood. Clinitest is a tablet method for the detection of urine-sugar. It is a copper-reduction test which develops its own heat within the test tube. Albutest (Albumintest) is a realiable, non-poisonous, non-corrosive tablet method for the detection of protein (albumin). It does not require heat. Hematest is a new, unique, tablet method for the detection of occul blood in feces, urine and other body fluids. It is a reliable procedure that can be carried out quickly by the physician, public health worker or laboratory technician. Ames representatives will be glad to discuss the therapeutic indications of the Ames Bile Acid Products, Decholin, Degalol and Cholmodin, with attending physicians.

The Quaker Oats Company, 141 W. Jackson Blvd., Chicago. Booth 67.

The Quaker Oats Company Exhibit features two protein-rich companion cereals created to be fed alternately—the new Baby Quaker Cereal Food, and Baby Quaker Oatmeal. Both are precooked and strained.

The Coca-Cola Company, Wilmington, Del. Booths 68 and 69.

Coca-Cola is being served through the joint courtesy of the Kansas City Coca-Cola Bottling Co. and The Coca-Cola Company at Booths 68 and 69.

W. C. Scott & Company, 1023 Grand Ave., Kansas City. Booth 72.

QUERY:

Has the Council on Pharmacy and Chemistry yet accepted any individual brand of testosterone propionate?*

*J.A.M.A. May 4, 1946

ANSWER:

Yes. The brand which has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies is

TESTOSTERONE PROPIONATE "RARE CHEMICALS"

Approved literature describing the use of this N.N.R. androgenic preparation in recognized indications will be forwarded on request.

ACCEPTED AMERICAN MEDICAL ASSN Council on Pharmacy and Chemistry



Obtainable from your usual source of supply in 1 cc. ampules, 5 mg., 10 mg., and 25 mg.; in boxes of 3, 6, and 50.

RARE CHEMICALS, INC. HARRISON, NEW JERSEY

WEST COAST DISTRIBUTORS: **GALEN COMPANY,** RICHMOND, CALIFORNIA

Greb X-Ray Company, 1412 Grand Ave., Kansas City. Booth 76.

Physicians and guests are cordially invited to visit the Picker X-ray exhibit, for several good reasons. There are a number of things new in x-ray and you should learn of these. Those in attendance will gladly explain the advantages of the finest and most modern x-ray equipment made. The real convenience of main offices in both Kansas City and St. Louis, with regional service in Springfield and Plattsburg, is well worth looking into. When you pay for the best in x-ray you should know that you will get it and the best of service as an integral part.

Warren-Teed Products Company, 582 W. Goodale St., Columbus, Ohio. Booth 77.

The Warren-Teed Booth is easily recognized by the brilliantly-lighted, white and red display. Two products, recent developments of the Warren-Teed Laboratories, are featured—Am-B Elixir, a palatable, easily administered, liquid form of amino-acids, dipeptides, and polypeptides—and Epsilan Sterilized Solution, injectable Vitamin E in two strengths. Many important uses are being discovered for these products and the Warren-Teed representatives in the Booth will be happy to explain them.

Cameron Heartometer Company, 666 W. Division St., Chicago. Booth 79.

See the improved Heartometer, a scientific precision instrument for accurately recording systolic and diastolic blood pressures, also furnishing a permanent graphic record of the pulse rate, disturbances of the rhythm, myocardial response, the action of the valves, as well as peripheral vascular circulation. The Heartometer clearly reveals heart disturbances in both early and advanced stages, and is of great value in checking the progress of medication and treatments.

Swift & Company, Chicago, Ill. Booth 80.

J. H. Emerson Co., 630 Pearl Ave., Kirkwood, Mo. Booth 81.

At Booth 81, Otis C. Bennett and Robert B. Wallace are exhibiting and demonstrating the Emerson Hospital Model Resuscitator and the Emerson Hot Pack Apparatus.

Dairy Council of Kansas City, 519 Porter Bldg., Kansas City. Booth 82.

The Dairy Council of Kansas City's exhibit "FOOD MAKES A DIFFERENCE" stresses good prenatal diets—including one quart of milk plus other nutritive foods as essential for healthier mothers, as well as healthier babies. This exhibit shows results of studies made at the Department of Maternal & Child Health, Harvard School of Public Health. The studies were concerned with two groups of babies and their health and development at birth . . . those on a good prenatal diet and those on a poor prenatal diet. See this exhibit for statistics and results of this study.

E. R. Squibb & Sons, 745 Fifth Avenue, New York. Booth 83.

E. R. Squibb & Sons are exhibiting Penicillin blood levels following administration of Crystalline Penicillin G Sodium in Oil and Wax. There is also a suggested dosage schedule for a twenty-four hour period for various types of infections.

J. R. Siebrandt Mfg. Co., 3239 Troost Ave., Kansas City. Booth 84.

The Siebrandt Manufacturing Company is showing at Booth 84 a new type Portable Fracture Table which will serve for Reduction and Alignment of the various conditions required in fracture treatment. The Table base is built of plywood, plastic and aluminum; fully transparent for x-ray service. The outstanding feature is a full length cassette tunnel for holding all sizes of x-ray cassettes for either pelvic-spinal or cervical examination, without disturbing the patient. The legs of the table are quickly removable and permit table to be placed on regular x-ray table, if mobile x-ray unit is not available. The top of the table is constructed like a box with lid to serve as container and will hold mechanical accessories, including removable legs, for storage. They are also showing the Goodwin Bone Clamp—Clayton Transfixion Splints, and a complete line of Fracture equipment.

Rexair, Inc., Fisher Bldg., Detroit, Michigan. Booth 85.

Rexair is a portable air cleaner that performs many hospital jobs. It purifies, deodorizes and humidifies the air; cleans floors, walls and furniture; scrubs floors; draws in dustladen air and sends out clean, moist air. Dirt is trapped in water, poured down the drain. There is no bag to empty.

C. W. Alban & Company, Inc., 3626 Olive St., St. Louis. Booth 86.

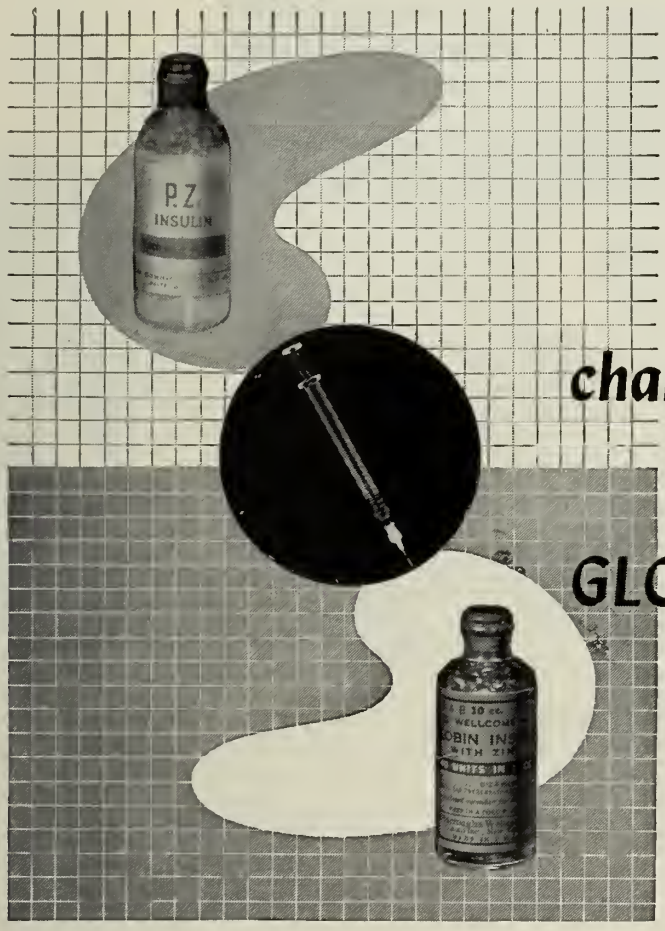
C. W. Alban Co. is presenting a complete line of Medical Books and Instruments including Stille Sweden stainless steel, American stainless, diagnostic sets, furniture, lamps and miscellaneous sundries of interest to the profession.

Irwin, Neisler & Company, Decatur, Illinois. Booths 87 and 88.

The Irwin, Neisler exhibit presents to the members of the Missouri State Medical Association and their guests, a series of color photographs and photograms on the biological standardization of Vertavis, on the test animal Daphnia Magna; also, graphs illustrating clinical findings and clinical response to Pertavis therapy. Pertavis is a product for the treatment of essential hypertension.

W. B. Saunders Company, West Washington Square, Philadelphia. Booth 89.

This Company is exhibiting the complete line of their books including Hyman's "Integrated Practice of Medicine," Bockus' "Gastro-enterology," Lyons & Woodhall's "Atlas of Peripheral Nerve Injuries," Rubin's "Diseases of the Chest," Cooke's "Allergy," new editions of Wechsler's "Clinical Neurology," Ranson & Clark's "Anatomy of the Nervous System," Novak's "Gynecological and Obstetrical Pathology," Cecil's "Medicine," DeLee & Greenhill's "Obstetrics," Wharton's "Gynecology and Female Urology," Duncan's "Disease of Metabolism," Boyd's "Surgical Pathology," McCombs' "Internal Medicine," and many others.



changing from PZI to GLOBIN INSULIN

When protamine zinc insulin treatment is complicated by post-prandial hyperglycemia, nocturnal insulin reaction, protamine sensitivity, or other difficulties, a change to Globin Insulin often results in the desired improvement. The change is achieved in three steps:

1. THE INITIAL CHANGE-OVER DOSAGE: The first day, 30 minutes or more before breakfast, give a single dose of Globin Insulin, equal to ½ the total previous daily dose of protamine zinc insulin or of protamine zinc insulin combined with regular insulin. The next day, dose may be increased to ⅔ former total.

2. ADJUSTMENT TO 24-HOUR CONTROL: Gradually adjust the Globin Insulin dosage to provide 24-hour control as evidenced by a fasting blood sugar level of less than 150 mgm. or sugar-free urine in the fasting sample.

3. ADJUSTMENT OF DIET: Simultaneously adjust carbohydrate distribution of diet to balance insulin activity; initially 2/10, 4/10 and 4/10. Any midafternoon hypoglycemia may usually be offset by 10 to 20 grams carbohydrate at 3 to 4 p.m. Base final carbohydrate adjustment on fractional urinalyses.

Most mild and many moderately severe cases may be controlled by *one daily injection of 'Wellcome' Globin Insulin with Zinc.* Vials of 10 cc.; 40 and 80 units per cc. Developed in The Wellcome Research Laboratories, Tuckahoe, New York. U.S. Pat. 2,161,198. Literature on request.

'Wellcome' Trademark Registered

'WELLCOME' Globin Insulin WITH ZINC

BURROUGHS WELLCOME & CO. (U.S.A.) INC., 9 & 11 EAST 41ST STREET, NEW YORK 17, N.Y.

Lov-é Brassieres

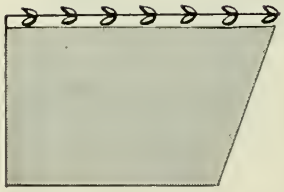


HYGIENIC REMEDIAL SUPPORT
for Specific Breast Conditions

Custom-fitted to the individual in exact accordance with the physician's instructions, these supports are the most highly specialized available and a definite aid to treatment.

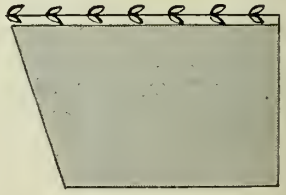
Special models provide hygienic remedial support for specific breast conditions. Also available: amputation models, artificial breasts, muscle pads, hospital binders, maternity garter supports.

In more than 500 bust-cup-torso size variations.



LOV-E SECTION CORSET DEPARTMENT

FAMOUS-BARR CO., ST. LOUIS



"Food allergies are more common in infants and young children than in later life" *

And first in the list of offending foods is *milk*... milk, that most vital constituent in all infants' and children's diets!

• Fortunately, milk can be replaced with MULL-SOY, a hypoallergenic soy food possessing the essential nutritional values of cow's milk, but free from offending animal proteins.

• MULL-SOY is a biologically complete vegetable source of all essential amino acids, and approximates cow's milk in its percentages of protein, carbohydrate, fat and mineral content when mixed with water in standard dilution (1:1). Infants (as well as children and adults) find MULL-SOY palatable, easy to digest, and well tolerated. It is simple to prepare.

*Levine, S. Z.: J.A.M.A. 128:283, May 26, 1945

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350 MADISON AVENUE, NEW YORK 17, N. Y.
In Canada write The Borden Company, Limited
Spadina Crescent, Toronto

before Mull-Soy



after Mull-Soy





MULL-SOY

WHEN MILK BECOMES "FORBIDDEN FOOD"

ACCEPTED MEDICAL

MULL-SOY is a liquid emulsified food prepared from water, soy flour, soy oil, dextrose, sucrose, calcium phosphate, calcium carbonate, salt, and soy lecithin; homogenized and sterilized. Available in 15½ fl. oz. cans at all drug stores.



"FOR ME ALWAYS"

Because DARICRAFT

1. is EASILY DIGESTED
2. has 400 U.S.P. Units of VITAMIN D per pint of evaporated milk.
3. has HIGH FOOD VALUE
4. has an IMPROVED FLAVOR
5. is HOMOGENIZED
6. is STERILIZED
7. is from INSPECTED HERDS
8. is SPECIALLY PROCESSED
9. is UNIFORM
10. will WHIP QUICKLY

PRESCRIBED BY MANY DOCTORS ...You also may want to utilize Daricraft as a solution to your infant feeding problems, as well as in special diets for convalescents.

PRODUCERS CREAMERY CO., SPRINGFIELD, MISSOURI



We Prescribe As the Best Antidote For Disability Known Today - - -

"THE SILVER SEAL NONCANCELABLE"

Guaranteed renewable to age 60—incontestable

$20,000 fund provides $200 a month so long as you cannot practice, benefits continue 50 months no matter what else you do—and up to 100 months during complete incapacity. House confinement is not required. Flat additional allowance of $10 a day—regardless of actual expense—while you are hospitalized.

Address inquiries, stating age, to

MASSACHUSETTS INDEMNITY INSURANCE COMPANY

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In the St. Louis Metropolitan district, to

C. E. Hovey, General Agent
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This same broad type of policy is now available to your nurse and receptionist.

Cook County Graduate School of Medicine

(IN AFFILIATION WITH COOK COUNTY HOSPITAL)

Incorporated not for profit

Announces Continuous Courses

SURGERY—Two Weeks Intensive Course in Surgical Technique starting March 17, April 14, May 12, and June 9.
Four Weeks Course in General Surgery starting March 31, April 28, May 26.
Two Weeks Surgical Anatomy & Clinical Surgery starting March 17, April 14, May 12, June 9.
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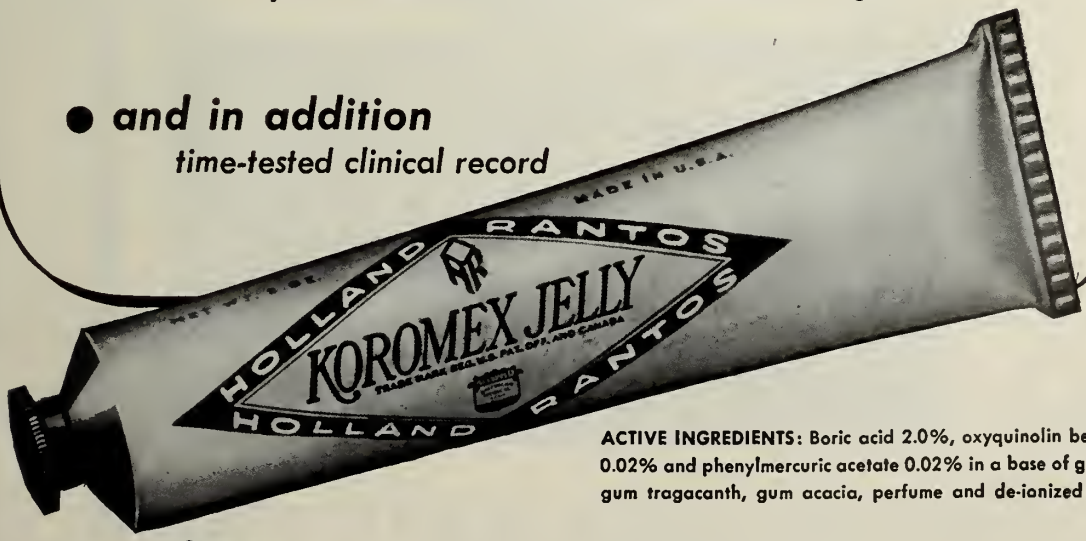
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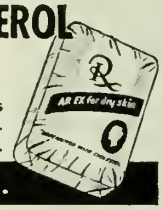
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(1) Menefee, E. E., Jr., and Atwell, R. J.: South. M. J. 39:726 (Sept.) 1946.
(2) Woodward, F. D., and Holt, T.: J.A.M.A. 129-589 (Oct. 27) 1945.



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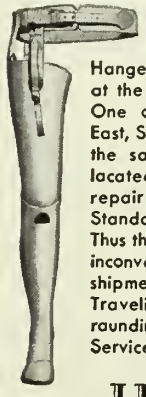
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INDEX TO ADVERTISERS

Abbott Laboratories 175
Aloe, A. S. Company 204
American Meat Institute 172
Ames Company 213
Ar-Ex Cosmetics, Inc. 234
Arlington Chemical Co. 189
Ayerst, McKenna & Harrison 195
Borden Company 227
Bristol Laboratories, Inc. 167
Burroughs Wellcome & Co. 191, 225
Camel Cigarettes 176
Camp, S. H. & Co. 232
Ciba Pharmaceutical Products, Inc. ..... Insert
Coca-Cola Company 211
Commercial Solvents Corporation 170
Cook County Graduate School of Medicine 228
Denver Chemical Mfg. Co. 192
Emerson, J. H. & Co. 204
Faith Hospital 230
General Electric X-ray Corporation 203
Glenwood Sanatorium 234
Gradwohl School of Laboratory Technique 236
Hamilton-Schmidt Surgical Company 234
Hanger, J. E. Inc. 236
Harrower Laboratory 215
Holland-Rantos Company 229
Hynson, Wescott & Dunning, Inc. 238
Isle, W. E., Co. 230
Lilly, Eli & Company ..... Insert
Lov-e Brassiere Co. 226
Luzier's Inc. 220
M & R Dietetic Laboratories, Inc. 237
Major Clinic Association 165
Massachusetts Indemnity Insurance Co. 228
Mead Johnson & Company 240
Medical Protective Company 207
Milwaukee Sanitarium 201
Monsanto Chemical Co. 204
Mosby, C. V. Company 178
Mullen Ambulance Company 230
National Pathological Laboratory 233
Norbury Sanatorium 166
North Shore Health Resort 236
Parke, Davis & Company 162, 163, 197
Philip Morris & Co. 174
Physicians Casualty Association 233
Pogue, Mary E. School 204
Producers Creamery Company 228
Quincy X-ray and Radium Laboratories 234
Ralph Sanitarium 166
Rare Chemicals, Inc. 198, 223
Robinson Clinic 230
Schenley Laboratories 235
Schering Corporation 173
Schmid, Julius Inc. 239
Searle, G. D. & Company 187
Smith-Dorsey Company 213
Smith, Kline & French Laboratories 219
Squibb, E. R. & Sons 169
Stokes Sanitarium 238
United-Rexall Drug Co. 231
Upjohn Company 164
U. S. Brewers Foundation, Inc. 233
U. S. Savings Bonds 232
Wallace Sanitarium 230
Winthrop Chemical Co. 171
Worrell, Dorothy 238
Wyeth, Inc. 177
Zemmer Company 234



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[1]Human Fertility 10: 25 (Mar.) 1945.

[2]Warner, M. P.: J.A.M.A. 115: 279 (July 27) 1940.

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(Contents Index Page 245)


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CONTENTS

Some Points in the Organization of a Rural Hospital Fracture Service. William J. Stewart, M.D., Columbia, Mo. 257

Colles Fracture. Nicholas Pickard, M.D., Kansas City, Mo. 258

Fractures About the Elbow Joint. Daniel L. Yancey, M.D., Springfield, Mo. 262

Fractures of the Hip. W. R. Bohne, M.D., St. Louis, Mo. 267

Treatment of Simple Fractures of the Ankle. J. Albert Key, M.D., St. Louis, Mo. 270

Surgical Conference—

Perforated Diverticulum of the Sigmoid. Robert Elman, M.D., W. E. Allen, M.D., G. A. Garkins, M.D., W. H. Sinkler, M.D., and Others, St. Louis 278

Abstracts and Digests—

The Opportunity 284

Book Reviews 286

Editorials—

Student Nurse Enrollment 289

Missouri Medical Service Annual Session 289

British Medical Journal 289

News Notes 290

Deaths 290

Organization Activities—

Financial Statement for 1946 290

Society Proceedings 293

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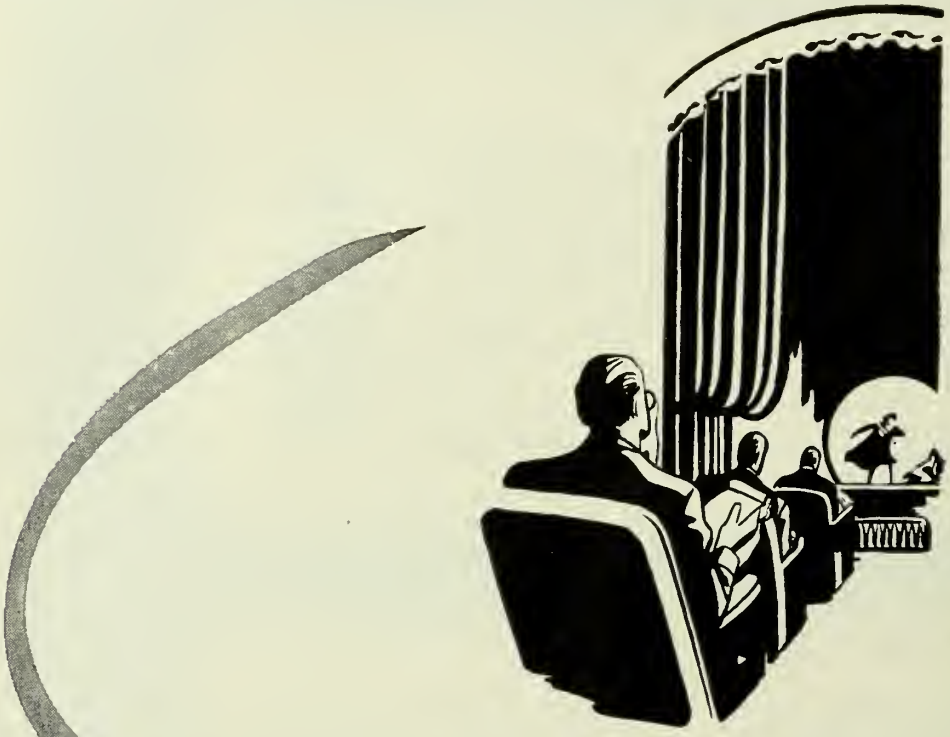
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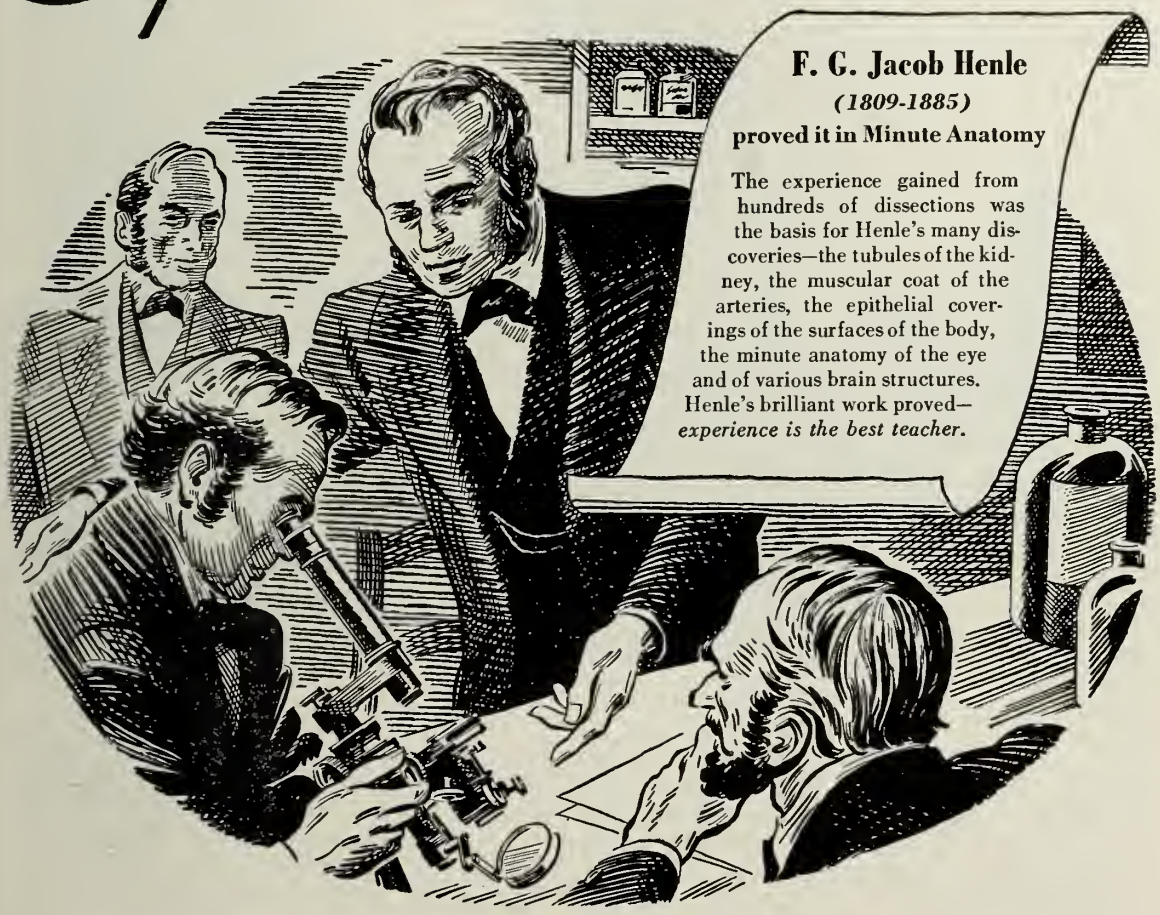
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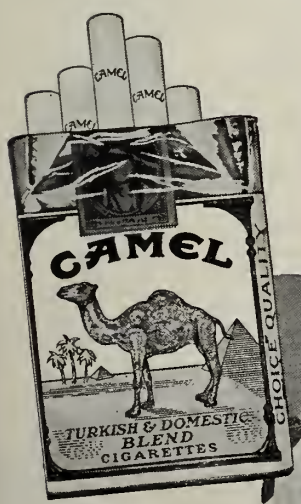
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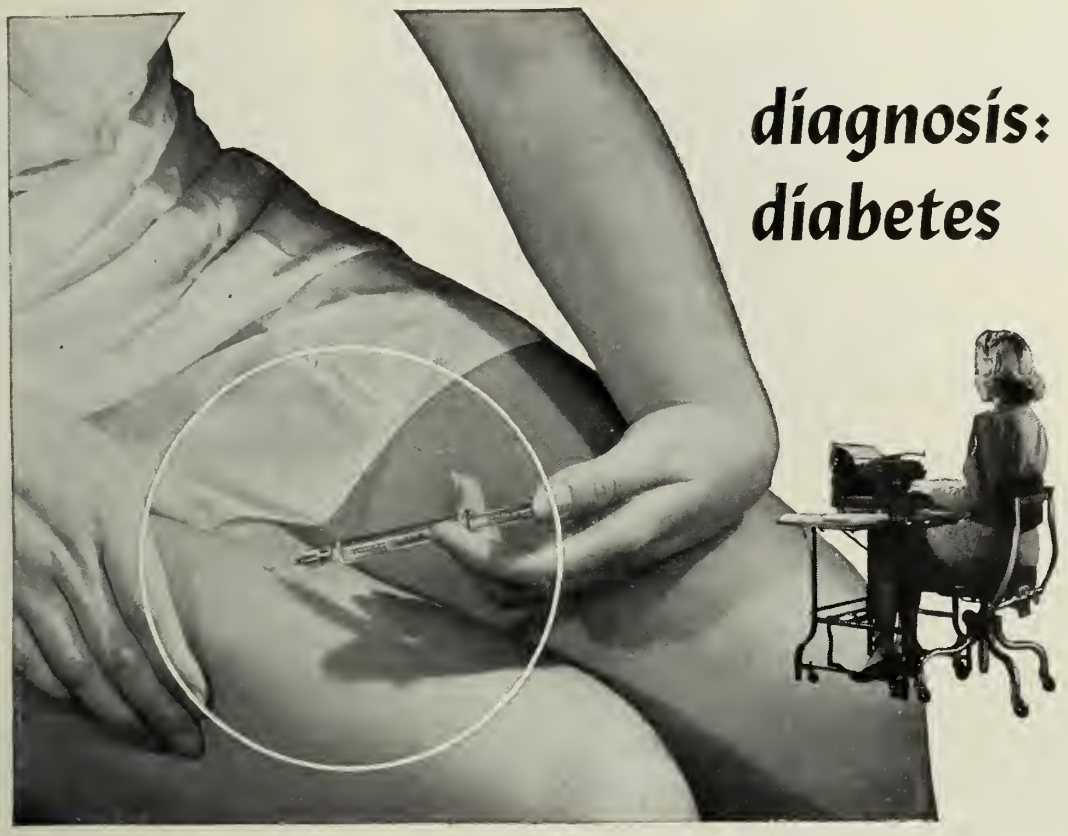
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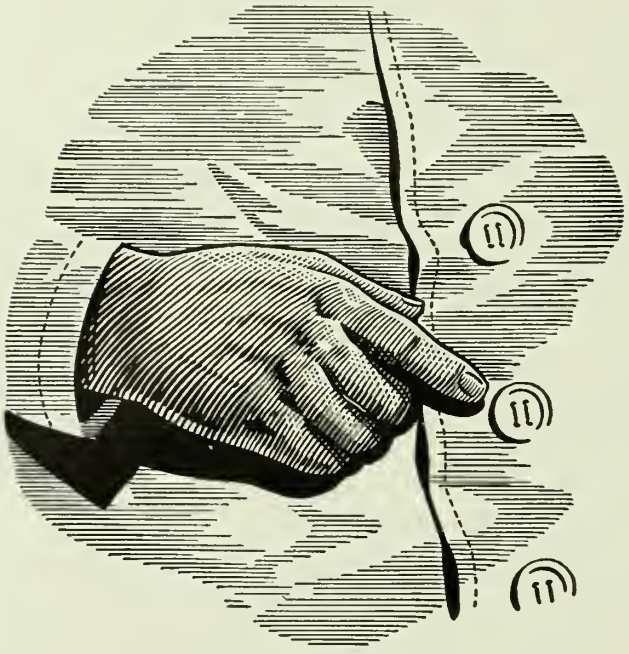
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SYMPOSIUM ON FRACTURES

SOME POINTS IN THE ORGANIZATION OF A RURAL HOSPITAL FRACTURE SERVICE

WILLIAM J. STEWART, M.D.
COLUMBIA, MO.

The problems of handling fractures in a rural hospital are somewhat different from those encountered in the large metropolitan centers. The first and most marked difference usually lies in the personnel of the staff of such hospitals, and the second point is concerned with the available equipment for the proper handling of fractures.

The average rural hospital has a staff composed basically of general practitioners with certain men tending to specialize in general surgery, general medicine and obstetrics. Orthopedic or traumatic surgeons and radiologists usually are not associated with such hospitals. The first problem, therefore, is that of establishing a consulting service with such specialists in order to provide interested professional coverage for bone and joint injuries.

It is possible to arrange, in many instances, for such consulting services in a regular scheduled manner, as well as for emergencies. This, of course, is largely up to the consultants to make themselves available at regular intervals—for example, twice weekly—in order that the members of the permanent staff may feel free to request their advice and counsel.

The matter of equipment is, in many instances, quite a serious one. First of all, adequate roentgen ray equipment is mandatory; both fixed and portable units should be available. Next, a fracture table should be provided. The small portable types that can be mounted on a standard operating table are better than nothing but, if it is at all possible, the hospital should be urged to secure a standard make of fracture table of the non-portable type.

A small stock of Thomas splints of assorted sizes, together with Pierson attachments, should be available. Balkan frames can, in most instances, be manufactured of wood and held together with easily secured bolts if the hospital is unwilling to invest in commercial metal frames. The commercial frames will, of course, far outlast most wooden ones and have the advantage of not warping and bending after prolonged use.

Skeletal traction devices, consisting of Kirschner wires and spreader bows and suitable measured weights, are a must on the equipment list.

An increasing number of fractures are treated by internal metallic fixation in rural areas where the services of a qualified consultant are available. This is desirable both from a therapeutic standpoint and an economic point of view. It is extremely important with the marked shortage of rural hospital beds that metallic fixation be applied in order to permit convalescence of a high percentage of fracture patients in their own homes. It is desirable, therefore, for the hospital to have available a fair assortment of standard metallic fixation devices, such as hip nails and angle bars for the treatment of all types of fractures involving the neck of the femur, an assortment of standard plates and screws for the fixation of other types of fractures, and an adequate supply of instruments for the application of these fixation devices. This latter group, namely, instruments, plates, screws, nails and such, in most instances, can be supplied by the consultant but it is eventually desirable for the hospital to furnish them.

One of the functions of the consultant should be that of training some member of the local staff in the handling of fractures and, of course, it would be manifestly impossible for such a staff member to apply his skills and knowledge unless the implements were at hand.

A most important item which should be available and furnished by the hospital is an adequate supply of plaster of paris splints and bandages. The average rural hospital probably will not handle enough fractures to make it practical to use home-

made plaster bandages. There is today no need for the hospital to be concerned with this problem because commercial bandages are available in a wide range of sizes and are supplied in moisture-proof air-tight containers so that deterioration during storage is no longer a major problem.

I have purposely omitted mentioning metal or plastic splints which can be supplied by many commercial firms. I feel that the intelligent use of plaster of paris is much more desirable than are these devices. A plaster shoulder spica can be molded for the patient and is, to my mind, more satisfactory than any ambulatory metal splint which is fastened to the patient's body. Plaster splints for upper and lower extremity fixation are of far greater value than any device which is strapped on the patient. I believe that too many hospitals in the past have purchased a set of such appliances and the doctors have then tried to make the fractures fit the devices rather than taking advantage of the flexibility of plaster of paris in securing adequate post-reduction fixation of the involved parts.

These, briefly, are the major points which should be recognized in the establishment of a fracture service in the average small hospital not immediately adjacent to a large metropolitan area. When such a plan is followed, increasingly better care under local handling of fractures, both major and minor, will result.

COLLES FRACTURE

NICHOLAS PICKARD, M.D.
KANSAS CITY, MISSOURI

Every practitioner is presumed to be able to treat a fracture. And indeed he does treat fractures feeling all too frequently that he is dealing with a relatively unpleasant and unimportant branch of his art. Before the advent of the roentgen ray and the Workmen's Compensation Board, it was not too difficult to satisfy the individual with a broken bone for nature did her best and the victim tended to be fatalistic in his attitude toward his misfortune. Today, the habit of studying end results has not only prevaded centers of higher medical learning but has found its way into lay groups so that the excellence, or otherwise, of the outcome is apparent not only to the patient but to the solicitous circle of his acquaintances who now are aware that fractures can be treated in such a way that permanent deformity and functional loss are not necessary.

The fracture which occurs in the cancellous bone of the lower extremity of the radius and erroneously bears the name "Colles"* is of deserving importance in a group of papers on fractures. It is one of the commonest of fractures (Shands[1] has estimated its occurrence to comprise 8.4 per cent of all fractures). Outside the immediate vicinity of large hospitals, it is treated universally by the general practitioner. The injury is notorious for poor results. According to Shands,[1] one fourth of all patients with fractures of the lower end of the radius entering Duke University Hospital for treatment presented old fracture deformities of the wrist. While Shands considered that in some instances the deformity was due to neglect on the part of the patient, he attributed the majority to improper management.

It would be repetitious to detail the treatment of Colles fracture. Numerous texts supply this need and it may be presumed that the reader will view this subject from the vantage point of many years of experience. Under the circumstances it might be permissible however to crystalize those fundamental aspects of Colles fracture which might point the way to a better management of the problem.

CLINICAL ASPECTS

The patient who suffers a Colles fracture presents a distortion of the normal conformation of the wrist plus more or less loss of function of the wrist and hand plus pain. Analysis of the anatomy of the injury will demonstrate the presence or absence of five possible changes occurring individually or in combination. These are:

1. A hinge angulation of the distal fragment so that its articular face no longer preserves its anterior inclination of 15 degrees and 25 degrees in an ulnar direction.

2. A shift of the distal fragment dorsally or in a radial direction with a corresponding shift of the carpus.

3. Impaction of the distal fragment with more or less comminution particularly of the dorsal surface so that there is shortening ("settling") of the radius and the radial styloid no longer projects distally with respect to the ulnar styloid.

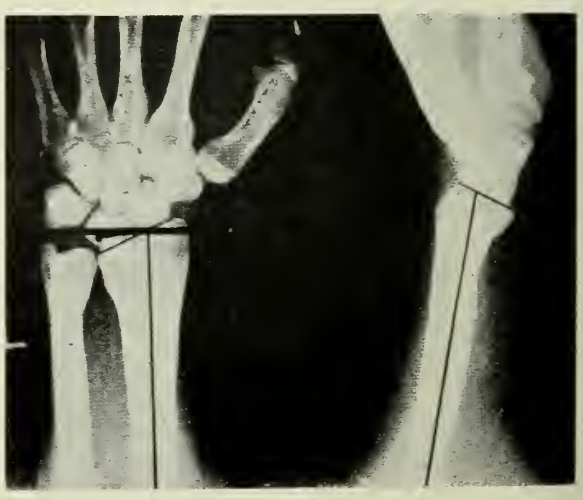


Fig. 1. (a) Illustrates 15 degrees angulation of radius in an anterior plane. (b) 25 degrees angulation in an ulnar direction. (c) Dark line drawn transverse to the axis of the radius indicates the relative length of the radial as compared with the ulna styloid.

*It (Colles fracture) was first described not by Colles in 1814 but by Pouteau in 1773. The so-called "Colles Level" as known today was elucidated by Smith in 1847.

The reverse Colles fracture, separation of the lower radial epiphysis and fracture of the radial styloid (Chauffer's fracture) will not be discussed in this paper which concerns itself with Colles fracture presenting deformity.

4. Rotation (supination) of the distal fragment with respect to the proximal fragment.

5. Fracture of the distal extremity of the ulna with or without diastasis of the inferior radio-ulnar joint resulting in "widening" of the carpus.

It is significant that the anatomic alteration occurs in the neighborhood of the joint resulting in changes in the plane and shape of its articulating surface; fragments of bone and later callus are piled up about the joint so as to limit its excursion and tendons are stretched and impeded in the confinement of the carpal spaces. In consequence, there is corresponding interference with the strength and range of motion of the fingers as well as loss of movement of the wrist and rotation of the forearm. Treatment of Colles fracture is important only insofar as it relieves deformity, restores function and abates pain. In this connection, it must be remembered that while there is inevitable loss of function in the unreduced Colles fracture, it is common knowledge that the best results in the unreduced cases occur in those patients who have never been aware of the existence of the fracture, who have imagined it to be a sprain, who have never sought medical advice and have never been splinted but have moved their wrists to the best of their ability from the first. Treatment then is undertaken on the basis of the fact that in the same patient a good reapposition of joint surfaces will yield a better fuctional result than no treatment in a higher percentage of cases.

Let no practitioner undertake to treat Colles fracture without the aid of roentgen ray studies made before and immediately after manipulation. Only by this means may an evaluation of the exact degree and type of anatomic distortion be made, and only by this evidence may the surgeon exhibit the changes which he himself has accomplished by forceful manipulation. It is assumed that the fracture will be treated immediately and that an anesthesia will be administered for that purpose.

There is no one and universal method by means of which the fracture will be reduced* easily and successfully. Certain procedures such as loosening of the impaction of the backwardly rotated distal fragment, consideration of the adduction component of the deformity and restoration of the anterior curvature of the lower end of the radius are essential. All too frequently the practitioner has accepted the dictum that by the indirect hand shaking method of applying corrective force through the chain of small carpal bones in pulling the hand into extreme volar flexion and adduction, the fragments will be replaced. The only sure method of altering the relationship of the impaction is to apply force directly to the lower fragment. The contention of Bankhart[2] that considerable violence

*"The surgeon with his left hand plan upward, grasps the patient's (left) arm, placing the tubercle of his own scaphoid against the projecting lower end of the upper fragment; he then places his (right) hand palm downward with the tuberosity of the scaphoid on the upper edge of the lower fragments, when by forceful pressure the fragments are powerfully replaced in position and crepitus is often felt." Sir Robert Jones, Proc. Roy. Soc. Med. December 1910.



Fig. 2. Note that plaster extends to first palmar crease allowing full free use of all fingers.

is necessary to accomplish this has not found wide acceptance in the management of fresh fractures. Except in rare instances the fracture of the ulna may be ignored.

The purpose of splinting after manipulation is to immobilize the fragments in the corrected position, relieving pain and giving expectancy of retention of proper relationship of the fracture components. The essential feature of the splinting is the control of the extensor aspect of the forearm and wrist. The anterior splint if inaccurately applied may tend to thrust the lower fragment into a position of deformity. The splint must immobilize only the radio-carpal and the inferior radio-ulnar joints. Above all it must not under any circumstances immobilize the metacarpo-phalangeal joints. The use of the extreme flexed position represents a confession of failure to obtain free disentanglement of the lower fragment which is necessary for accurate reduction of the displacement. Abbott and Saunders[3] have demonstrated that this position may lead to embarrassment of the median nerve. This paper does not argue the type of splinting to be used but the words of Bankhart[2] on this point are pertinent: "The proper use of plaster of paris requires a little practice but I would submit that the putting up of a Colles fracture in plaster is within the capacity of any practitioner; it requires less special knowledge and skill than the alteration of an unsuitable splint to make it suitable."

I have been trained in the use of the "sugar tong" splint which is quite satisfactory for the purpose of adjustment to the increasing or regressing swelling which may be encountered in the wrist and hand in the period following manipulation. In the first seventy-two hours following the injury the surgeon must alert himself to the possibility that circulation to the hand may be embarrassed. Extreme pain associated with cyanosis and glaring of the skin and swelling and flexion deformity of the fingers furnish crying warning that the dressing is obstructing blood flow. Complacency in the face of these signals constitutes neglect. The frequency of observation in this period will be determined by the individual case. Regardless of circumstances every patient must be surveyed personally by the surgeon in the twelve to twenty-four hour period.

Immediate initiation of active motion of all of the fingers, of as much flexion and extension of the elbow as the splint allows, and of all motions of the shoulder is an imperative essential of treatment.

Experience has indicated that union of the fragments in this fracture requires approximately five weeks. There is a belief that deformity once re duced will not recur. This is an outstanding instance of loose thinking which has prevaded this subject. In truth, deformity recurs frequently despite accurate reduction and satisfactory splinting, especially in those fractures in which there has been considerable comminution and loss of the bony substance of the dorsal portion of the distal end of the radius. It is for this reason that the literature contains many references to the use of distracting pins placed in the metacarpals below and the radius above the fracture site in this type of fracture. This paper does not argue the use of such apparatus; it does plead for the accurate fitting of the dorsal splint and for the retention of that splint until union occurs. Many authorities, particularly British, have advocated early removal of splints for the purpose of physiotherapy. There is no evidence that such a course produces a better functional result and there are many instances of reoccurrence of deformity in the second and third week under such a regime. The British themselves now are tending to persist with retention of the splint through the full period required for union.

In cases occurring in the aged or in which extremes of flexion and adduction have been used in the original splinting, it may be advisable to alter the position of the wrist and hand in the fourth week, bringing it back to a virtually neutral position. Upon removal of the splints, heat and massage applied to the hand will compliment the active exercise of the fingers which at no time has been discontinued during the treatment.

The period of disability will vary according to the nature of the activity of the patient prior to injury. The housewife may and should return virtually all of her duties within a period of about twelve days. Partial disability will be encountered for an interval of approximately eight to twelve weeks. The period of partial disability of the laborer may extend to as much as four months. Fraser Gurd[5] has said: "No patient should be presumed to have no permanent partial disability who has in fact suffered a fracture of a large bone such as the radius. Such traumatic disability is reasonably estimated as being in the neighborhood of 3 to 5 per cent. If however as a result of the severity of the original injury, delay in reduction, inadequacy of reduction, inadequacy of postoperative treatment or a combination of factors, there is in fact real interference with the function of the radiocorpal, radio-ulnar joints or free movements of the tendons, each case must be judged on its (own) merits." This final sentence of Gurd's likewise must be applied to the judgment of end results. What would be considered to be a good result in an elderly individual afflicted with arthritis would be deplored in a young athlete or actress.

A final word must be appended in regard to complications encountered in the management of this injury. There should be no difficulty in establishing a diagnosis in the average case and every



Fig. 3. This tragic result illustrates the effect of improper splinting. The patient is a 50 year old cook who fractured her wrist in 1942. Roentgen rays illustrate fairly satisfactory reduction. The splint was applied out over the fingers and was left applied about nine weeks. Illustration of the hand in various position four years after injury indicate residual atrophy of the muscles of the hand, flexion deformity of the fingers and inability to make a fist.



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practitioner has or should acquire the "feel" of a fracture when it occurs in a superficial location without the necessity of eliciting creptius. Errors will be made in underestimating a simple undisplaced transverse fracture or when injury occurs to the carpal navicular or to the semilunar bone. The penalty in overlooking the simple fracture of the radius is not great; that of overlooking either of the latter two injuries may prove to be incalculable. One must acquire certain habits to be carried out routinely in the physical and roentgen examination of all patients no matter how obviously the problem presents itself. Above all, the point of maximum tenderness to palpation must be established. If there is any question of tenderness located in the anatomic snuff box of the carpus, an oblique radiograph of the navicular must be ordered for the routine anteroposterior and lateral views may fail to disclose this fracture. One must learn to anticipate the smooth fitting of the carpal bones. Watson Jones[6] has pointed out the triangular appearance of the dislocated semilunar bone.

The most disastrous and the most commonly suffered complication of this injury is the stiff hand. In some instances this is due to the pathologic type of circulatory reflex encountered in certain individuals but more commonly is found to be the result of viscous splinting applied too tightly over too much of the hand or applied for too long a period of time. Bunnell insists rightly that the fingers were meant to move. If, after the outpouring of fibrin incidental to the injury, the tendons are not exercised, there is a clotting in the synovia about tendons and joints which in many instances lead to permanent thickening, contraction and restriction of excursion, ("the congealed hand"). In those instances in which pathologic circulatory reactions (reflex dystrophy of De Takats) the abnormal chain of events may be broken only by early active motion of the unimpeded fingers.

The importance of the derangement of the inferior radio-ulnar joint as a source of residual disability has been debated back and forth since 1915 when it was first discussed by Darrach.[7] In about 50 per cent of cases the fracture line reaches the upper limit of the articular facet of the head of the ulna or enters the joint lower down. Anything more than minimal upward and backward displacement cannot occur without tearing the triangular ligament or avulsing its attachment. The result of such derangement is pain and interferes with the movements of pronation and supination commonly experienced in using a screw driver, playing tennis or wringing a cloth. Lippman[8] has advised splinting in supination in cases in which instability is demonstrable following reduction, on the basis of the fact that the ventral portion of the triangular ligament and the pronator quadratus muscle are taut in supination, under which circumstance the distal extremities of the two bones are drawn together.

Rarely rupture of the tendon of the extensor pollicis longus muscle, or delayed median nerve palsy, are encountered in Colles fracture. The former occurs in the third to twelfth week and is evidenced by drooping of the thumb, partial flexion of the distal phalanx of the thumb and loss of active elevation of the thumb. By Smith[9] it has been attributed to aseptic necrosis of the tendon following interference with its blood supply. Injury to the median nerve is not common despite its proximity to the fracture. Abbott and Saunders[3] consider that the fleshy fibers of the pronator quadratus muscle afford it ample protection. When the nerve is injured it is usually a delayed type of reaction appearing from one to two months after injury characterized by slow onset of numbness in the thumb, index and middle fingers.

The significance of degenerative arthritis as a factor in poor end results will depend upon the

degree of importance which the observer attaches to follow up roentgen examination. If only roentgen rays are considered, undue significance may be placed upon this means of rating.

SUMMARY AND CONCLUSIONS

1. Colles fracture traditionally is regarded as an injury which may be safely entrusted to the general practitioner.

2. Statistics obtained from the large insurance companies relative to period and degree of disability indicate quite clearly that the treatment of Colles fractures leaves much to be desired.

3. Restoration of function is enhanced by early accurate reduction, adequate splinting of the injured joints, immediate mobilization of the adjacent joints and prompt return of the individual to his normal activities. The most serious of permanent disability is the stiff hand which in many instances may be attributed to the ill advised attention of the unthinking physician.

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FRACTURES ABOUT THE ELBOW JOINT

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The mechanism and function of the elbow make it one of the most interesting joints in the human body. It includes the articular surfaces of the distal end of the humerus and the upper ends of the ulna and radius which are bound together by a complete capsule of dense fibrous tissue and supporting ligaments. This fibrous structure is quite dense on either side, but becomes rather thin anteriorly and posteriorly. The articulation between the olecranon of the ulna and the trochlea of the humerus is a truly hinged joint, while the articulation between the capitellum of the humerus and the head of the radius is a modified ball and socket joint. Normally the motion in the elbow is approximately 150 degrees. The range extends from approximately 30 degrees in flexion to 180 degrees in extension. There is no lateral motion in the normal joint. When the forearm is extended, there is a mild deviation outward at the elbow of from 10 degrees to 15 degrees. This deviation is called the carrying angle, and is important to preserve when treating certain types of fractures. There are, in relation to the elbow joint, six secondary centers of ossification, which appear from the third to the twelfth year, and the corresponding epiphyses close in the period which extends from puberty to the twentieth year.

The plan of treating fractures about the elbow, like all other fractures, is considered in three phases:

1. Accurate anatomic reduction.
2. Retention of the reduction.
3. Rehabilitation, which covers the period from the time of the reduction until the patient reaches maximum function and motion in the injured part.

The many types of fractures which occur about the elbow are each a problem within itself. However, there are certain types of fractures which occur in certain areas about the elbow which can be classified and discussed as a group. The fractures that are common in children in this area are not common in adults, and vice versa; therefore it is well to consider fractures about the elbow in two specific groups that is, fractures which are common in children and fractures which are common in adults.

FRACTURES ABOUT THE ELBOW IN CHILDREN

1. *The Supracondylar Fracture.*—Due to the anatomic structure of the lower end of the humerus it is relatively weak and is the most common site of fractures about the elbow in children. The distal fragment usually is displaced posteriorly and sometimes laterally. Frequently, the fragment also is rotated. The distal fragment rarely is displaced anteriorly, and such a fracture can be more serious due to the relation of the fragment to the nerves and blood vessels in the anterior portion of the elbow. Reduction of the supracondylar fracture must be done early and is accomplished under general anesthetic by making traction in the long axis of the humerus. Then the elbow is flexed to about 45 degrees or as much as the edema will permit. The forearm is held in supination. It must be noted that flexion of the elbow will not reduce this type of fracture. It is the traction and posterior pressure of the distal fragment that brings about reduction. Flexion of the elbow only maintains the re-

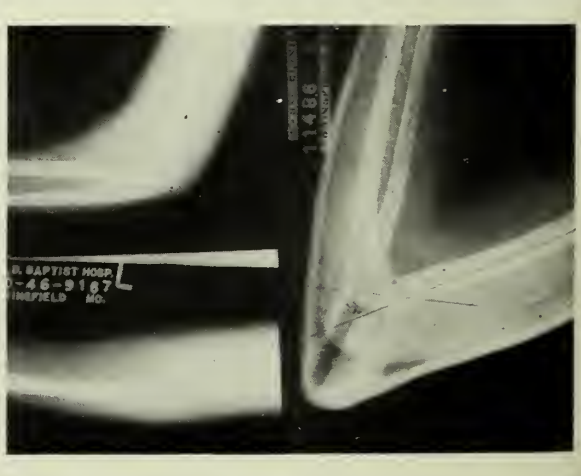


Fig. 1. Reveals a supracondylar fracture of the humerus, occurring in a 7 year old girl. A. Note the posterior displacement of the distal fragment. B. Reduction reveals the capitellum to be in front of the axis of the humerus.

duction. With the forearm flexed the expansion of the tricep ligaments and muscles form an excellent posterior splint and the position of the fragment is maintained once the reduction has been made. A posterior molded plaster splint is then applied and accurately fitted to the extremity. The radial pulse must be palpable immediately after reduction and closely observed forty-eight hours following the reduction.

2. *The Dicondylar Fracture.*—This fracture extends between the condyles or epicondyles of the humerus and usually involves the epiphyseal line at the lower end of the humerus; however, it is not a true epiphyseal separation as a fracture usually involves the diaphyseal side of the humerus. This fracture is produced by the same mechanism which causes the supracondylar fracture and the method of reduction and immobilization should be carried out in the same manner.

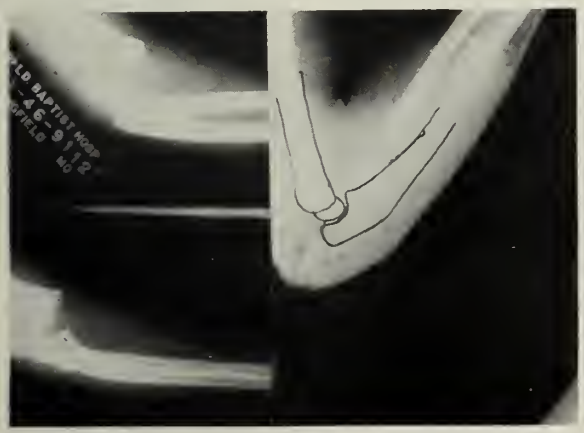


Fig. 2. Reveals a dicondylar fracture occurring in a 7 year old boy. A. Comp'ete lateral and posterior displacement of the distal fragment. B. Reveals reduction with the condyle lying anterior to the axis of the humerus.

3. *Epiphyseal Displacements at the Lower End of Humerus.*—An epiphyseal separation in this area is not uncommon and is sometimes rather difficult to recognize. All "sprains" about the elbow in children should be regarded as an epiphyseal injury. If the roentgen ray is negative, yet pain and swelling associated with limited motion of the elbow is present, then it is likely that some injury to one of the epiphyses has occurred. On the other hand, the displacement may be rather extensive and normal relation of the epiphyses will be lost. This is easily detected by a roentgen ray.

a. *Displacement of the Lateral Condyle (Capitellum).*—This is the most common of the epiphyseal injuries at the elbow. The center of ossification appears at approximately 3 years of age and fuses about the seventeenth year. The extensor muscles of the forearm originate in this area and the fragment not only is displaced but frequently rotated due to muscular activity. Accurate replacement of the fragment is essential to prevent growth disturbance or aseptic necrosis in the fragment. If the displacement of the fragment is not great and rotation has not occurred, closed reduction usually can be done by manual manipulation and immobilization in a posterior plaster splint with the elbow in a moderate degree of flexion. In case there is much displacement or rotation of the fragment, open reduction is necessary. The fragment often will be found almost free within the capsule and it is a temptation to remove it completely. However this must not be done. The fragment must be replaced accurately and sutured. In case there is not sufficient soft tissue or fibrous tissue to suture the fragment in position, then a Kirchner wire should be passed through the fragment across the epiphyses into the shaft of the humerus and the distal end of the wire left protruding through the skin in order that it may be removed in two or three weeks. Then a posterior plaster splint is applied with the elbow in moderate flexion.

b. *Displacement of the Medial Epicondyle.*—The medial epicondyle appears as a center of ossification about the fifth year, and the epiphyses fuse usually about the eighteenth year. Displacement naturally is common to a certain age group, occurring most frequently at puberty and is very rare in adult life. This is nearly always an avulsion type of separation due to the pull of the flexor muscles of the forearm into the valgus position. Displacement may be slight, or it may be extensive, depending on the extent of the trauma. In the more severe cases the epicondyle may be thrust into the elbow joint. When this occurs, there frequently is some damage to the ulna nerve, due to its proximity. Care should be taken to evaluate the condition of the nerve before any manipulation is done. Slight displacement of the epicondyle requires no manipulation, but the elbow should be immobilized with the posterior plaster splint in a moderate degree of flexion, with the forearm in pronation. It is impossible to obtain an anatomic reduction by manipulation; therefore, if the fragment is displaced to any great extent or if it lies in the elbow joint, an open reduction should be done and the fragment sutured back in its original site. It is not necessary to use any type of metallic fixation as there is always ample tissue to suture the fragment in position. During the operative procedure the ulna nerve should be exposed and inspected, as it may be desirable to transplant the nerve anteriorly.

c. *The Lateral Epicondyle.*—This is sometimes formed by a separate center of ossification. However, an epiphyseal separation of the area is quite rare and no special treatment is indicated.

d. *Displacement of the Epiphyses of the Head of the Radius.*—This injury usually occurs as a result of a fall upon the hand. While there may not be an actual displacement of the epiphyses, there may be a deformity of the neck of the "green stick" variety. The amount of deformity will depend upon the amount of impact received in the fall. Manipulation under general anesthesia should be attempted with the aid of a fluoroscope. Frequently reduction can be obtained with the elbow in exten-

sion while direct pressure is made over the injured area of the radius during rotation of the forearm. When reduction has been accomplished, the roentgen ray will reveal the articular surface of the radial head and capitellum in parallel positions. The elbow should then be immobilized in a plaster splint for a period of two or three weeks. If the deformity can not be corrected by external manipulation, the reduction should be accomplished by an operative exposure of the proximal end of the radius and correction made by direct force. No internal fixation should be used and the radial head should not be removed. Following the correction, the wound is closed and immobilized in a plaster splint with the elbow at 90 degrees for a period of three weeks.

e. *Displacement of the Epiphyses of the Olecranon.*—This, or fracture of the olecranon, is rather rare in children. However, when it does occur treatment should be directed along conservative methods.

FRACTURES ABOUT THE ELBOW IN ADULTS

1. *Supracondylar Fractures of the Humerus.*—These are not so common in adults as in children. They are usually the result of an indirect blow. Closed reduction should be attempted, and the fracture immobilized in moderately acute flexion. Occasionally a fracture in this area will be encountered that can not be reduced satisfactorily or can not be retained after reduction. One should not hesitate to do an open reduction and some type of internal fixation should the closed reduction fail. Nonunion in this area is rare if a fairly good reduction is obtained.

2. *Intracondylar or "T" Fractures.*—These are usually due to direct force on the elbow joint. It is a rather common fracture in the adult. Some of these fractures can be treated by manipulation and immobilization in a plaster cast, if displacement is not too great. However, the majority of these cases are best treated by skeletal traction with a Kirchner wire through the olecranon of the ulna with the elbow maintained at a right angle. A certain amount of active motion can be permitted during this period of traction. Some of these cases require open reduction and internal fixation. While anatomic restoration is desired, it is not always wise to proceed with extensive reduction of the fragments by open methods. There may be extensive proliferation of fibrous tissue about the capsule with resulting impaired motion. It is much better to be satisfied with an imperfect reduction and satisfactory mobility of the elbow joint than to have a perfect reduction and very little motion. When open reduction is done, it is essential that the fragments be fixed firmly so that very early motion can be inaugurated.

3. *Fractures of the Olecranon of the Ulna.*—Fractures of the olecranon may be the result of a direct force or it may be an avulsion type of fracture, due to the force of the strong triceps muscle when the arm is forcibly flexed. The function of the olecranon



Fig. 3. A. Fracture of the olecranon, dislocation of the head of the radius of an 18 year old girl. B. Reveals reduction and fixation with a double wire loop through the olecranon. This roentgen ray was made ten weeks following her injury and she had only 5 degrees limitation of flexion and 10 degrees limitation in extension of the elbow.

has been compared to that of the patella. The gliding mechanism of the triceps tendon is very similar to that of the quadriceps tendon. The important factor in treating a fracture of the olecranon is to restore the expanse of the triceps tendon. If the proximal fragment of the olecranon is not greatly displaced the reduction can be obtained satisfactorily by manipulation and immobilization, with the arm in full extension. Immobilization requires from four to six weeks before active motion is begun. If there is much separation of the fragments, operative reduction and repair of the tendon is necessary. Watson-Jones recommends the resection of the proximal fragment of the olecranon and the repair of the triceps ligament. This procedure permits early active motion. In case the distal fragments of the olecranon are not resected, it is very necessary to obtain an accurate anatomic reduction as it involves the articular surface. Firm fixation, which can be successfully accomplished by wire, screws or intramedullary pins is necessary. The elbow should be immobilized until the sutures are re-



Fig. 4. A. Extensive fracture of the ulna in a 46 year old man. B. Reveals fixation of the ulna with a metallic screw. The proximal fragment of the olecranon was ignored. Motion is good. It would probably have been better to resect the olecranon entirely in this case.

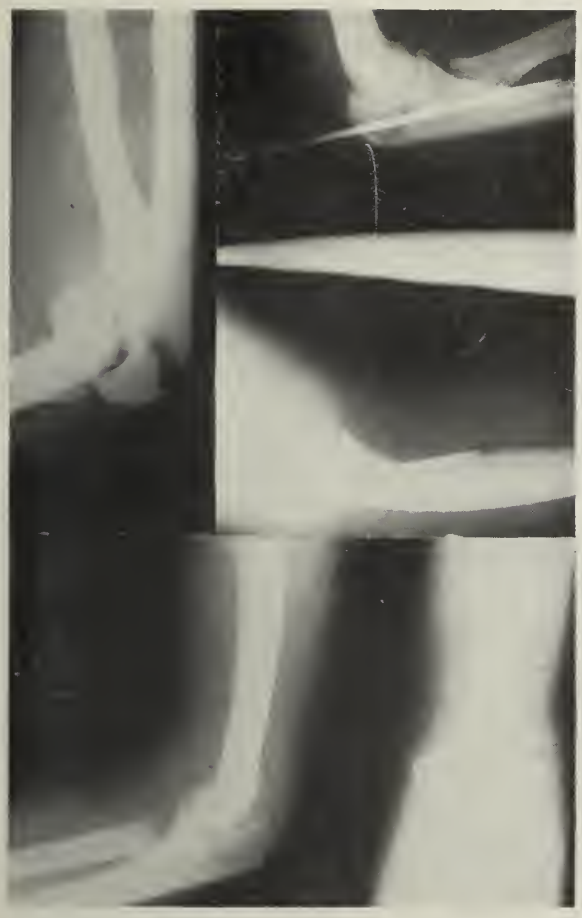


Fig. 5. A. Fracture of the olecranon and comminuted fracture of the head of the radius occurring in a 22 year old man. B. Shows fixation with Stienman pin and resection of the head of the radius. C. Eight weeks after initial injury. Union is firm and motion in the elbow is satsfactory.

moved and active motion begun. Prolonged immobilization always leads to some limitation of motion and disability regardless of how perfect the reduction and union.

4. *Fracture of the Coronoid Process of the Ulna.*—Fractures of the coronoid process of the ulna are not very common and it usually is associated with a posterior dislocation of the elbow. Diagnosis usually is not made until the displaced fragment is seen in the roentgen ray. The fragment usually is replaced when the dislocation is reduced. Occasionally, however, the fracture will be sufficiently extensive to require some type of internal fixation.

5. *Fracture of the Head and Neck of the Radius.*—Fractures involving the radial head or neck are usually the result of a fall on the outstretched hand in pronation. This is one of the more common injuries about the elbow in adults, and it is often neglected because it is thought to be a sprain. Some hermorrhage is always associated with the fracture. If it is sufficient to cause distention of the joint capsule, considerable pain will be encountered. The entire head of the radius may become separated completely, lying free within the joint capsule, or there may be marked comminution of the head, without a great deal of displacement. Sometimes, only a marginal fracture occurs in the head, with or without displacement. After the diagnosis is made, aspiration of the joint should be done. If there is little or no displacement of the fragments, or if only a portion of the head is involved, conservative treatment should be used. This consists of wearing a sling for about two weeks, during which active motion is encouraged several times daily. If there is extensive comminution of the head, or if the fragments are displaced, resection of the head must be done. It should be done during the first few days following injury because, if there is several weeks delay in resecting the head, fibrosis about the joint probably will be so extensive that little motion will be regained by operation. Excision of the head is done through a short incision along the posterior margin of the extensor muscle and the fracture site exposed. All blood clots must be evacuated and all fragments should be used to reconstruct the head as they are removed. If any of the fragments are missing they must be searched for until found. After the desired amount of bone has been removed from the neck of the radius, the capitellum should be inspected to see if the articular surface has been fractured and any loose fragments should be removed. The stump of the radial neck then is covered with the joint capsule by using a purse string suture. This is important to prevent new bone formation. Following closure of the wound, a sling is worn for two or three weeks. Immobilization is not necessary. During the period of rehabilitation, early active motion should be inaugurated and carried out.

6. *Monteggia Fracture.*—The Monteggia fracture was described more than 100 years ago and is the



Fig. 6. A. Monteggia fracture with characteristic displacement. B. Reduction with a facial sling about the neck of the radius and ulna maintained with a vitallium plate.



Fig. 7. A. Monteggia fracture about ten days old. B. Reduction of the ulna and fixation with a vitallium plate, resection of the head of the radius.

name applied to a fracture in the upper third of the ulna with displacement of the head of the radius. The fracture of the ulna is usually upward and toward the radial side, and the head of the radius is dislocated anteriorly, or perhaps laterally. If seen early, this fracture dislocation may be reduced satisfactorily by manipulation. However, if some time has passed it may be impossible to reduce and maintain the fracture. Then open reduction is necessary. Following reduction of the ulna, it should be immobilized by a plate or by some other method of rigid fixation in order to prevent angulation. The radius should be retained by a facial sling about the neck if it can be reduced. In delayed fractures of this variety it is probably better to resect the head entirely and plate the ulna as described. This fracture requires immobilization for from four to six weeks, with the elbow at a right angle or slightly flexed.

7. *The Side Swipe Fracture.*—This fracture is so called because it occurs as a result of the driver of a car resting his elbow in the car window and being side-swiped by a stationary object or another passing car. The force is usually terrific and the fracture extensive, usually compound. The nerves and the blood vessels frequently are damaged, which adds to the complication of treatment. In compound fractures, careful debridement of the wound is necessary. At this time blood vessels and nerves are inspected carefully and the wound closed, thus converting a compound fracture into a simple fracture. If the olecranon of the ulna is intact, skeletal traction should be used and the fragments carefully molded in the best possible position. Traction should be maintained over a period of four or five weeks, during which time active motion of the forearm should be encouraged.

COMPLICATIONS FOLLOWING FRACTURES ABOUT THE ELBOW JOINT

There are two rather serious complications which may follow fractures about the elbow. The first is ischemic contracture, which was first described by Volkmann many years ago. This condition is the result of impaired circulation to the muscles of the forearm and occurs most commonly in the supracondylar type of fractures. It may occur as a direct injury to the brachial artery, due to a laceration or compression by the protruding upper fragment of the humerus. It may be due to venous stasis, associated with hemorrhage under the deep fascia or swelling in the cubital fossa, or it may be due to dressings or splints which have been applied too tight which have impaired the circulation. The signs which almost always can be observed are absence of the radial pulse, discoloration, numbness, tingling and pain in the hand and fingers.

Treatment.—If a fracture about the elbow is seen in which the radial pulse is absent, careful manipulation of the fracture should be done immediately and the pulse observed to see if circulation returns. Very frequently, reduction of the fracture alone is sufficient to relieve pressure thereby restoring circulation. Following manipulation in fractures about the elbow, the pulse must be palpable and remain so until all danger of ischemia is past. In case the radial pulse disappears a short time after reduction of the fracture, the dressings must be removed and the arm extended until the pulse can be palpated. In case this measure is not successful and the signs of ischemia are appearing, an anterior incision should be made in the forearm separating the deep fascia to relieve pressure. Inspection of the brachial artery should be made at the same time. Once the paralysis or contracture of the muscles has occurred, there is no completely satisfactory treatment for restoration of function. Improvement can be accomplished by extension of the hand and fingers in splints, if the condition is not too advanced. One is no longer dealing with normal muscle, as the muscle has been replaced with fibrous tissue and one can not expect this tissue to have contractility or other properties of normal muscle. Reconstructive operations may be of some benefit, but they are beyond the scope of this paper.

The second serious complication of fractures about the elbow is myositis ossificans. Due to the position of the anterior brachial muscle in the cubital fossa, it frequently is injured and when such occurs a certain amount of hemorrhage results and may be associated with elevation of the periosteum in this area, which probably accounts for the ossification occurring in this muscle. Myositis ossificans occurs in other parts of the body but is most extensive about the elbow and there is no

way of telling when it will occur or to what extent it will develop. Diagnosis usually is made when the calcified area is seen in the roentgen ray. This condition passes through a building up period of from four to six months and then it goes through a period of absorption which may last six or eight months.

Treatment. — When ossification is discovered, treatment should be absolute rest for from four to six weeks and then active motion gradually encouraged. Passive motion or forceful motion should never be done as it only aggravates the condition and stimulates further ossification. Baking and gentle massage may be used, chiefly for psychotherapy rather than to hasten recovery. At the end of the year if the calcified mass is still present, it is advisable to resect it carefully as it probably will never become smaller by absorption after that time.

REHABILITATION

The period of rehabilitation extends from the time a fracture is immobilized until the maximum amount of function and motion is attained. This phase of treatment of fractures has been sadly neglected in the past. It is a duty to explain to the patient or the parents the reason why one has immobilized a joint in a certain position and about how long it will be necessary for the patient to wear the splints or cast. One must impress upon them the importance of the moving of the joints of the extremity which are not immobilized. Children will tolerate immobilization of the elbow better than adults. The elbow joint is not a weight bearing joint and active motion must be begun as soon as possible. When the elbow is immobilized the splints or cast should not extend beyond the metacarpal phalangeal joints. It is important during the period of immobilization that the fingers are allowed full range of motion. After the cast has been discarded a routine program of activity and motion must be given to the patient, and it is important to explain to the patient that the early return to function will depend upon the individual. Time is an important factor, and some types of fractures about the elbow will not regain the maximum motion until after six months to one year has passed. Passive motion or forceful manipulation of the elbow is probably never indicated. For children, such procedures as carrying a bucket of sand or a flat iron is not helpful, as stretching the ligaments and capsule tend to stimulate fibrosis. Early active motion is a most important factor in regard to normal function.

205 St. Louis Street.

FRACTURES OF THE HIP

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Much has been written in the last few years relative to the treatment of fractures of the hip. Various operations have been planned and many gadgets devised for the fixation of fractures of the hip.

Obviously, this article on fractures of the hip cannot attempt to cover the subject in any detail. Physicians who limit their practice to the treatment of fractures are well acquainted with the details and pitfalls connected with hip fractures. It is for the physician who only occasionally treats fractures that this article is presented.

Fractures of the hip are practically limited to people of advanced years.

Highway and industrial accidents contribute a fair number of hip fractures. Falls at home over rugs and loose objects produce by far the greater number of these hip fractures.

The diagnosis of hip fractures is comparatively simple. Any individual past middle age who has experienced a fall and is complaining of pain in the region of the hip should be suspected of having suffered a fracture of the hip until roentgen rays prove otherwise. The problem of the physician is to prove that it is not a fracture. The history of a fall, if accompanied by eversion of the foot, shortening, soreness over the Scarpa's triangle or greater trochanter, inability to raise the heel from the bed level holding the knee extended, all but confirms the diagnosis. No manipulation other than possibly slight passive motion should be attempted because it merely adds to the discomfort of the patient and traumatizes the soft tissues.

All suspected fractures of the hip should be roentgen rayed to verify the presence of a fracture and the the location of the fracture, whether intracapsular or extracapsular. The nature and location of the fracture determines the method of treatment.

It is almost imperative that all cases of suspected hip fracture should be brought to the hospital by ambulance for roentgen ray examination and treatment. These patients should be splinted and handled carefully to prevent further trauma and shock. Transporting these patients unsplinted in the family car should be discouraged. Not only is this procedure extremely painful, it increases shock and much additional damage can be done. Many impacted femoral neck fractures are changed into complete fractures by unskillful handling of the patient.

I. INTRACAPSULAR OR FRACTURE OF THE NECK PROPER

A complete fracture of the neck of the femur cannot be treated by means of simple traction or traction suspension apparatus if a union is expected. This treatment has been tried, and is still tried, and always results in a nonunion. These complete fractures of the femoral neck must be immobilized in perfect reduction. Only under unusual circumstances, such as pathologic fractures due to malignancy, or in extremely feeble and fragile individuals, should simple traction be attempted. This traction does relieve pain and facilitates nursing care. A responsible member of the patient's family should be told that this is merely a palliative measure and no union should be anticipated. Age in itself is not a contraindication to active treatment.

Many methods of fixation and treatment have been described.

A. *Reduction and Fixation in Whitman Abduction Plaster Cast.*—By this method, after the fracture is reduced and position checked by anteroposterior and lateral view roentgen rays, it is held in position by a plaster hip cast in abduction and internal rotation. The cast extends from the axilla to the toes on the affected side. This method has been practically discarded at the present time because patients do not tolerate the cast well and the long immobilization results in stiff and painful joints, especially of the knee. It does have the advantage of permitting the patient to be turned on his face in an effort to combat hypostatic pneumonia. These patients must be roentgen rayed at regular intervals to be assured that reduction has been maintained. Unless the spica is well fitted, enough motion can be established to permit dislodgement. In the past, reasonably favorable results were obtained, but recent developments of internal fixation have practically displaced this method. I feel that this method should not be attempted unless circumstances are such that it is imperative, such as the mentally deranged patient.

B. *Roger Anderson Well Leg Splint.*—In the hands of experienced operators, good results have been reported. However, this method has lost considerable favor in that many nonunions have resulted, as well as joint disturbances in the uninjured as well as in the injured leg. Much liberty, however, is permitted by this method in that patients can be gotten up in a chair early.

C. *Smith-Petersen Three Flanged Nail Through Lateral Incision and Extra-articular Technic.*—This method enjoys the greatest popularity in that it is comparatively simple, causes very little shock and gives a high percentage of satisfactory results. Several essentials must be met if this is to be accomplished: (a) adequate shock-proof roentgen ray equipment so that anteroposterior and lateral roentgen rays can be taken; (b) the fracture must be perfectly reduced and checked by roentgen rays in anteroposterior and lateral directions; (c) the nail must be centrally located in the head and neck; (d) the nail must be of proper length so that it will be well placed in the capital fragment across the fracture line and not protrude at any length out of the trochanter. A nail protruding from the trochanter frequently gives considerable discomfort and may require removal of the nail. Care also must be taken that the nail is not driven through the head into the acetabulum. This results in a stiff and painful hip, even if union should take place. Effort should be made to get impaction. This, I feel, is essential in obtaining a solid union. The so-called fibrous unions, I feel, result from failure to get the fragments impacted. If the guide wire method is used, care must be exercised that the guide wire does not get stuck in the cannulated nail and thus be driven through the head and acetabulum into the pelvis. This can be prevented by removing the driver several times while in the process of inserting the nail to check that the nail is slipping along the guide wire.

After operation the patient is placed in bed with the leg supported on a pillow. The patient should be encouraged to move about in bed cautiously the day following the operation. Activity should gradually be increased. Early motion in the knee and ankle should be encouraged. After several weeks the patient can be gotten out of bed and placed in a chair with safety. This is followed shortly by crutches, provided one feels the patient can be trusted with them. Weight bearing should not be permitted until there is both clinical and roentgen ray evidence of union. This usually requires from four to six months. Discretion must be used in prescribing the use of crutches. Many individuals cannot be trusted to learn to use crutches, while others become adept immediately. A high percentage of unions can be expected and, with proper medical and nursing care, the mortality rate should be low. Sedatives and narcotics should be reduced to a minimum in that they frequently retard activity and physiologic functions, and favor hypostatic pneumonia.

D. *Henderson Leg Screw, Lorenzo Screw, Moreira Stud Bolt Screw.*—The same technic is necessary as with the Smith-Petersen nail, only a second guide wire is required either lower or higher in the neck and head to prevent rotation of the head when the screw is inserted into the capital fragment. These devices also tend to impact the fracture by pulling the head and neck together. Postoperative care is similar to that of the Smith-Petersen nail fixation.

E. *Austin Moore Multiple Screw Fixation.*—By this method internal fixation is accomplished by means of three or four stainless pins or screws inserted into the neck and head. Threaded screws also can be used for fixation at the cortex of the trochanter. These screws must be accurately located after perfect reduction has been obtained.

F. *Tibial Bone Graft.*—Prior to the introduction of the Smith-Petersen nail and blind nailing, the tibial graft frequently was used. However, at that time the whole head and neck was exposed and correction and fixation was done under direct vision. Patients were apt to suffer considerable shock and this method could be used only under the most propitious circumstances. Then, too, after internal fixation with tibial graft the patient needs long immobilization in a plaster hip spica. Recently, however, tibial grafting has been advocated, but through lateral extra-articular exposure. The tibial graft, however, is not adequate to hold the fragments without external support in the form of a plaster hip spica. This spica must be worn some eight to ten weeks, after which it is removed and the patient encouraged to exercise his ankle, knee and hip. This method requires considerable surgical skill and probably should not be attempted unless one has had extensive experience and has adequate

facilities. The advocate of this method feels that he gets a much higher percentage of unions by this method than by any fixation with metal.

Unless one is nailing hips regularly and has better than average roentgen ray equipment, as well as surgical and operating room assistance, I am of the opinion that the doctor who only occasionally operates would be wise to limit himself to the Smith-Petersen three phlange nail fixation. The method is simple, not accompanied by any shock, and terminates satisfactorily.

Should the nail be removed or left in place? Unless the nail causes trouble, do not disturb. Does the presence of the nail in any way contribute toward aseptic necrosis which frequently follows fractures of the femoral neck? I can only say that aseptic necrosis has taken place when union was obtained by the old Whitman method of closed reduction and fixation in plaster and, also, in cases of union following tibial bone graft. Whether or not the head undergoes aseptic necrosis is dependent upon the amount of damage done to the blood supply, irrespective of the presence of a nail or a bone graft. I do, however, feel that in the presence of aseptic necrosis, the nail should be removed.

II. IMPACTED FRACTURE OF THE NECK OF THE FEMUR

Impacted fractures of the neck present only one problem, and that is, what to do. Some surgeons are of the opinion that they need no treatment other than rest in bed. Others treat them in suspension, and still others prefer nailing them in the impacted position. I feel they should be treated in suspension with practically no traction. This method permits considerable freedom for the patient and also protects the fracture. These patients should be roentgen rayed regularly in order to watch progress. If the impaction should break up, the hip fracture can be nailed. This is unusual, but does occur. After about four to six weeks rest, impacted fractures usually are healed enough to permit slight weight bearing, but this in the final analysis is determined by the roentgen ray evidence of union and the patient's ability to use crutches.

III. EXTRACAPSULAR FRACTURES

It has been stated frequently that intertrochanteric fractures of the femur will always unite regardless of the treatment instituted. Unfortunately, one still sees patients who have been treated by merely supporting the injured limb with a few sand bags. Those who survive usually have marked shortening and deformity. In elderly people, one's effort to prevent or combat hypostatic pneumonia and pressure sores will take more care than the actual treatment of the fracture. Many of these patients are remarkably debilitated, and special attention must be given to food, fluids and vitamin intake. These patients require as much medical and nursing care as any other medical or surgical condition. It is this care which determines the difference between success and failure.

The more common methods of treatment are the following:

A. *Hodgen's Splint.*—This method probably is carried out most easily and will give a high percentage of favorable results if properly applied, carefully watched and adjusted. This splint permits abundant freedom, such as sitting up almost erect in bed and rolling from side to side. A minimum of sedatives and narcotics should be prescribed in that they tend to decrease physiologic as well as physical activities. If there is extreme deformity, it is advisable to give a light pentathol anesthesia before straightening out the limb and suspending it in a splint. Only a small amount of pentathol is needed to permit the operator to correct the deformity without additional pain and shock. These patients should be roentgen rayed at regular intervals to check the position of fragments. Should there be any marked coxa vara, more traction should be applied. If this does not correct the deformity, some form of internal fixation should be contemplated. However, elderly people, whose activities prior to the accident were limited, would probably not be handicapped to any great extent by a little shortening; at least not enough to subject these patients to the risk of an open reduction. In young and vigorous individuals, of course, internal fixation is preferable, provided one has appropriate facilities to carry out the details of internal fixation. The long confinement in extension often results in a stiff knee or one limited in flexion. Some develop a painful toe drop. This, however, is readily corrected by loosening the adhesive over the head and neck of the fibula where the peroneal nerve is very superficial. This complaint should not be neglected. Continued pressure over the nerve could lead to complete and permanent foot drop.

The limb should be suspended for about eight to ten weeks, after which it can be removed and rested on a pillow. Physiotherapy should be instituted immediately to get motion in the knee. The patient also can be gotten up in a chair. Younger and more active patients can be trusted with crutches. Weight bearing is permitted within four to six months, provided roentgen rays show good union.

B. *Thomas Splint With Pearson's Attachment.*—This method should give about the same results as a Hodgen's splint. One advantage is that the Pearson's attachment permits exercising the knee. However, many patients do not tolerate pressure from the ring and frequently develop pressure sores. Then, too, the ring may become soiled and cause skin irritation.

C. *Roger Anderson Well Leg Splint.*—This method is used frequently and does permit considerable activity on the part of the patient, such as sitting up in bed and getting about in a wheel chair. The disadvantage is that both legs are immobilized, and elderly people already have joint trouble and do not tolerate much immobilization.

D. *Internal Fixation.*—Internal fixation is be-

coming more and more popular. In the larger fracture clinics and public institutions, internal fixation is the method of choice. Hospitals are all overcrowded and internal fixation permits a more rapid turnover. Also, by this method patients have more liberties and do not require as much nursing attention as those treated more conservatively. However, the surgeon who only occasionally treats an intertrochanteric fracture should think seriously before attempting internal fixation, inasmuch as a union can be expected by conservative methods and a little deformity will, as a rule, be of very little consequence in elderly people. He must have adequate roentgen ray, as well as operating facilities, if he hopes to obtain internal fixation successfully.

However, if conditions are such that internal fixation is to be instituted, the Neufeld nail is perhaps the most commonly used method. It is essential that it be centrally located. The nail must be of proper length to avoid penetrating the acetabulum. Care must be be exercised also not to shatter the greater trochanter, thus radically complicating the situation. The immediate postoperative care is not unlike that of internal fixation of fractures of the neck. After about a week the patient is allowed up in a chair. The use of crutches and slight weight bearing is permitted in about six to eight weeks in individuals who are able to handle crutches. Full weight bearing is not permitted until union is demonstrated definitely by roentgen ray, which occurs in four to six months. Premature weight bearing has caused the nail plate to break and reinstitute a fracture.

Other methods of fixation, such as Moore blade plate, Smith-Petersen nail with Thornton plate, require about the same technic and give the same results if properly inserted and fixed.

SUMMARY

As stated, this article was presented for the benefit of those who only occasionally treat fractures of the hip. No effort has been made to present any technical details. It is assumed the operator will acquaint himself with these before attempting internal fixation.

Femoral neck fractures will not unite without perfect reduction and adequate fixation.

Internal fixation in femoral necks is imperative.

Good results can be obtained by conservative methods in extracapsular fractures of the hip.

Internal fixation of extracapsular fractures should be attempted only when conservative treatment is contraindicated or has failed, and the operator has the proper facilities to carry out some form of internal fixation.

The use of sedatives and narcotics should be withheld if possible, or kept at a minimum.

Good nursing and medical care is emphasized as essential.

4500 Olive Street.

TREATMENT OF SIMPLE FRACTURES OF THE ANKLE

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ST. LOUIS

In this discussion ankle fractures will be considered to include supramalleolar fractures of both bones of the leg, fractures of the external or of the internal malleolus or of both malleoli and anterior and posterior marginal fractures of the tibia and comminuted fractures of the tibial plafond. The various fracture dislocations and compound fractures will not be considered.

From the standpoint of treatment fractures of the ankle may be divided into those in which the fragments are in satisfactory position and those in which the fragments are displaced to such a degree that reduction is necessary if a good ankle is to be obtained. In the former group all that is necessary is to make the patient as comfortable as possible and prevent displacement of the fragments until the fractures have healed. In such cases no anesthetic or manipulative reduction is necessary. In the second group manipulative reduction under local or general anesthesia is necessary and it is to be noted that not only is the ankle a weight bearing joint, but, it also includes a mortise which grips the body of the astragalus and, in many fractures which involve the articular surface, an approximately anatomic reduction is necessary if a stable painless ankle is to be obtained. If a satisfactory reduction cannot be obtained and maintained by closed manipulation, open reduction with or without internal fixation is necessary.

Since the amount of displacement of the fragments which can be tolerated without interference with the function of the joint is relatively slight, the roentgen ray should be used freely in the treatment of ankle fractures, both for the diagnosis of the injury and in determining the position of the fragments during the period of treatment. Not only is it not possible to determine the details of the fracture without a roentgenogram, but it may not even be possible to determine whether one is dealing with a fracture or a sprain. Consequently all ankle injuries except relatively mild sprains should if possible be roentgen rayed early in the course of treatment.

EMERGENCY TREATMENT OF ANKLE FRACTURES

The purpose of emergency treatment is: (1) to immobilize the fragments and thus prevent further damage and relieve pain and, (2) to minimize the swelling, which in ankle fractures may develop rapidly and not only obscure the diagnosis, but make treatment more difficult.

Unless the fracture is severe and the fragments are quite unstable, a very satisfactory emergency treatment is a pressure dressing. This is applied by wrapping the lower half of the leg, ankle and foot in a thick layer of absorbent cotton and then

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binding this tightly with a gauze or elastic bandage. This pressure dressing tends to immobilize the fragments and to minimize the swelling. If the fracture is quite unstable the cotton dressing may be carried up the leg to the knee or above the knee and reinforced with lateral board splints or a metal foot splint. Lacking the above, a pillow may be pinned tightly around the leg and foot and then lateral board splints may be bound tightly to this. More satisfactory than any of the above is a plaster of paris cast applied over a moderate amount of padding.

TREATMENT OF FRACTURES WITHOUT DISPLACEMENT OF THE FRAGMENTS

If these fractures are seen before much swelling has occurred they can be immobilized immediately in a plaster cast which is applied directly to the skin or over a small amount of padding. One usually covers the foot and leg with a single layer of stockinette and wrap a thin layer of sheet cotton around the ankle. The foot is immobilized in about 90 degree dorsiflexion and in the neutral position as regards inversion and eversion.

If the fracture involves only one malleolus (fig. 1) the plaster extends only to the tibial tubercle and is fitted with a walking iron (fig. 2). The patient may begin to bear weight on the foot as soon as the plaster has hardened (from twenty-four to forty-eight hours) and within a few days he usually is able to walk fairly well without any other support. This cast is left on for six weeks for the external or eight weeks for the internal malleolus. When it is removed the foot, ankle and lower leg are strapped with adhesive or wrapped with an elastic bandage or anklet in order to control the swelling and permit the patient to walk in an ordinary shoe. The support to the ankle is continued until the patient is comfortable without it and swelling is no longer troublesome (from four to eight weeks). Crutches or a walking cane are used after the cast is removed and until the patient is able to get around comfortably, without their help.



Fig. 1. Fracture of external malleolus. Reduction of slight displacement and correction of slight diastasis not necessary. Treated with walking cast.



Fig. 2. Walking cast used in treatment of most fractures of the ankle.

If the fracture involves both malleoli or the tibial plafond or is a supramalleolar fracture, the plaster cast is extended above the knee to include the distal third of the thigh and is applied with the knee in slight flexion in order to prevent rotation of the foot on the leg. No weight bearing is permitted on these fractures during the first month. At the end of this time the long plaster cast is removed and a short walking plaster (fig. 2) is applied. This is worn for from four to six weeks or longer if necessary until the fragments are firmly united.

If considerable swelling has occurred before the patient is seen the snug walking cast is not indicated and a padded plaster of paris cast or a pressure dressing is applied and left in place until the swelling has subsided (from one to four weeks) when the padded cast or dressing is removed and the snug walking cast is applied.

TREATMENT OF FRACTURES WITH DISPLACEMENT OF THE FRAGMENTS

These may be divided into the supramalleolar fractures and true fractures of the ankle. The supramalleolar fractures are really fractures of both bones of the leg and are treated as such. If the fracture lines are such that the fragments will be stable when reduced, the fractured extremity is manipulated by traction, angulation and lateral pressure under general or local anesthesia until a satisfactory reduction is obtained. Then a plaster cast is applied with the foot in whatever position maintains the reduction, usually in slight equinus and in the neutral position as regards lateral deviation.

If the fragments are comminuted or oblique, the fracture is treated by traction by means of a Kirschner wire through the tuberosity of the os calcis with the foot and leg immobilized in a plaster of paris cast which extends to the middle of the thigh with the knee almost straight, or, the fracture may be treated by open reduction with internal fixation if



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*BOGERT, L. J.: *Nutrition and Physical Fitness, 4th edition, 1943, Chapter IX, p. 22.*

**A.M.A.: *Handbook of Nutrition, 1943, p. 360.*

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the surgeon so chooses. The internal fixation is supplemented by a thinly padded plaster cast which extends to the middle of the thigh. The immobilization is continued until union is quite firm (from ten to twelve weeks).

In fractures of the malleoli with displacement, it is important to remember that the foot often is displaced backward as well as outward or inward on the leg. Likewise, it is to be noted that when the external malleolus is broken and the foot is displaced outward (abduction or eversion fracture) there is usually a tear of the internal lateral ligament or an avulsion fracture of the internal malleolus. Likewise, if the foot is displaced inward on the leg (inversion fracture) there is usually a tear of the external lateral ligament or an avulsion fracture of the external malleolus.

When the foot is displaced backward the posterior margin of the distal end of the tibia may be broken off and carried backward with the foot. This



Fig. 3. (a) Trimalleolar fracture treated by manipulative reduction. (b) Same after manipulative reduction and immobilization in long cast. Short walking cast applied four weeks later.

detached fragment is usually relatively small (fig. 3) and its anatomic reduction is not important but it may be of considerable size and include a third or more of the distal articular surface of the tibia and, in such instances, approximately anatomic reduction is necessary if a satisfactory ankle is to be obtained (fig. 6).



Fig. 4. Trimalleolar fracture in which closed manipulation failed to reduce the fracture of the internal malleolus.

In addition to the lateral or mesial and posterior displacement of the foot on the leg there also may be a diastasis of the tibia and fibula with consequent broadening of the space between the malleoli. If this diastasis is over one eighth inch and is not corrected, permanent instability and later traumatic arthritis of the ankle may be expected.

It is thus evident that before the reduction of an ankle fracture is attempted it is desirable that satisfactory roentgen rays be obtained in the anteroposterior and lateral directions in order that the extent of the fracture or fractures and the nature of the displacement may be determined.

In order to effect the reduction the patient is placed supine on a firm table with two sand bags or some other support under the knee of the fractured extremity and a general anesthesia is administered. Then, while the lower third of the leg is held down by an assistant, the foot is placed in a position of plantar flexion and is pulled forward strongly on the leg. When it is felt that the posterior displacement has been completely reduced, the foot is dorsiflexed to, or beyond 90 degrees. Then, if the foot is displaced outward the lateral displacement is corrected by direct pressure on the external malleolus or by strong inversion or by both. If the foot is displaced inward it is everted and the internal malleolus is pressed outward until the displacement is corrected. Finally, if diastasis is present, the foot is slightly plantar-flexed and an attempt is made to press the lower ends of the tibia and fibula together.

If considerable swelling is present this may be reduced or dissipated into the surrounding tissues by firmly kneading the swollen area with the surgeon's knuckles and then it is possible to palpate the malleoli and to effect a more accurate manipulation and reduction and to apply a more satisfactory cast. This reduction of the swelling by kneading usually is done before the reduction, but it may be done afterward, just before the cast is applied.

The various displacements, which were present, having been reduced, the extremity is ready for the application of a plaster of paris cast. In most in-

stances this is applied with the foot dorsiflexed to 90 degrees and in the neutral position as regards inversion or eversion. In an abduction or eversion fracture in which the internal malleolus has been pulled off and displaced downward and outward, strong inversion of the foot may be advisable in an attempt to reduce the displacement and it may be necessary to immobilize the foot in this position in order to maintain the reduction.

The plaster cast is applied over a thin layer of padding and extends from the toes up to the middle of the thigh and is applied with the knee slightly flexed. The patient may be up on crutches, but this is not a walking cast. At the end of three or four weeks a walking cast is applied and this extends only to the tubercle of the tibia. It is worn for from four to six weeks and then it is removed and the patient wears an ordinary shoe. The foot is protected from swelling by an elastic bandage and crutches or a cane used until the patient can get along well without them.

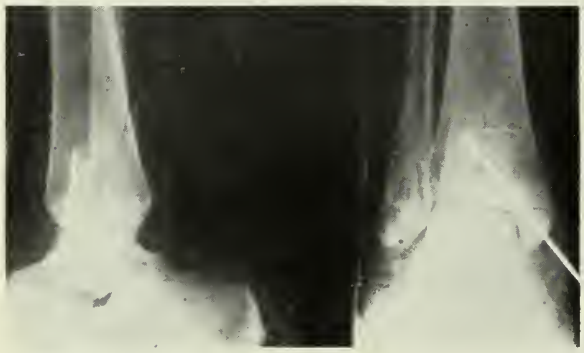


Fig. 5. Same as figure 4 after open reduction and fixation of internal malleolus with a Kirschner wire. The wire was removed six weeks after insertion.

Immediately or within a few days after the reduction of the fracture and immobilization in a plaster cast, new roentgen rays are taken in the anteroposterior and lateral directions in order to determine whether or not the fragments are still in a satisfactory position. In a fairly large number of these severe fractures of the ankle with displacements of the fragments, the post-reduction roentgen rays will reveal an unsatisfactory position of one or more fragments. In such instances a second manipulation under general anesthesia or, more frequently, an open reduction is necessary if a good ankle is to be obtained. The most frequent fault to be corrected is a failure to maintain reduction of the internal malleolus, even by strong inversion of the foot. The small detached fragment tends to be displaced downward and forward. If it is permitted to remain in this position it will not unite. In these cases an incision about 1½ inches long is made over the internal malleolus and the loose fragment is pressed back against its base and fixed with a small noncorrosive screw or nail. I usually use a plain Kirschner or threaded wire which projects through the skin and can be removed from four to six weeks later (fig. 4).



Fig. 6. Severe fracture of the external malleolus and posterior margin of tibia with large posterior fragment. Manipulative reduction unsatisfactory.

The second most frequent displacement which is not corrected by the first manipulation and which demands treatment is the persisting upward displacement of a relatively large posterior marginal fragment which includes enough of the articular surface to interfere with the function of the joint. This usually requires an open reduction (fig. 6). The patient is placed prone with a large sandbag beneath the lower third of the leg. The posterior surface of the lower one fourth of both bones of the leg is exposed by an incision lateral to the tendo achillis and the loose fragment is loosened and pushed back onto its original bed and fixed there with one or two small noncorrosive nails or screws. Care is taken not to injure the ankle joint which arches upward and is quite vulnerable from the rear. Then the fracture of the fibula is exposed in the same incision and if necessary a more accurate reduction of this fracture can be effected.

Occasionally an over correction or under correction of the lateral or mesial displacement in bimalleolar fractures may have occurred and this usually can be corrected by a second manipulation under general anesthesia. And this should be done

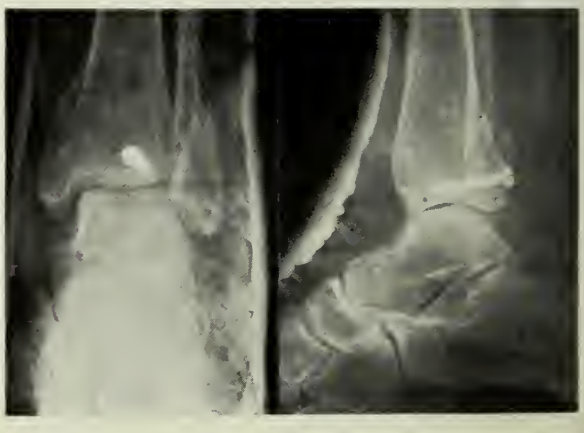


Fig. 7. Same as figure 6 after open reduction and fixation of posterior fragment with screw. In spite of slight diastasis and slight irregularity of articular surface function of extremity was normal.



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as soon as it is practical. The same is true of a failure to completely reduce the posterior displacement of the astragalus.

A rare complication is a persisting diastasis of the distal portions of the tibia and fibula. If this is more than one eighth inch it should be corrected. This usually can be done by placing the foot in moderate plantar flexion and firmly pressing the malleoli together and applying a snug plaster cast over very little or no padding. If this fails to reduce the space between the malleoli to approximately its normal width, the side of the fibula just above the ankle joint is exposed and a hole large enough to permit the free passage of a screw is drilled through this bone and a smaller hole is then drilled into the tibia and a screw is inserted and driven home to fasten the fibula down firmly against the tibia.

Rare fractures of the ankle are anterior marginal fractures with displacement and severe fractures of the tibial plafond with the astragalus driven upward and with or without marked diastasis of the tibia and fibula. The former usually demand open reduction and internal or external skeletal (Kirschner or threaded wire) fixation and usually a good result may be expected. In spite of the most expert care the latter not infrequently end in an ankle which is stiff and painful and an early arthrodesis is often the best solution to the problem which they present.

From what has been written in the preceding paragraphs it is evident that fractures of the ankle vary greatly in severity and complexity and that the treatment of one type may be a relatively simple procedure while that of another may tax an experienced surgeon's ingenuity to the utmost and that even with the best of care it is not always possible to obtain a perfect result. Efforts should be made to effect anatomic reduction of all fragments which involve the articular surfaces and to maintain this position until the fragments are firmly united. Then function is restored by active use and protection of the foot from swelling.

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SURGICAL CONFERENCE

PERFORATED DIVERTICULUM OF THE SIGMOID

SURGICAL CONFERENCE, HOMER G. PHILLIPS HOSPITAL,

OCTOBER 11, 1946

ROBERT ELMAN, M.D.
W. E. ALLEN, M.D.
G. A. GAIKINS, M.D.
W. H. SINKLER, M.D.
AND OTHERS

ST. LOUIS

CASE PRESENTATION

I. J., a 50 year old male patient, entered Homer G. Phillips Hospital on March 28, 1946, complaining of abdominal pain of four days' duration. The present illness began four nights previously when the patient was awakened suddenly with severe, cramplike pain in the suprapubic midline, radiating to both lower quadrants, with periods of complete absence of pain averaging 40 to 60 minutes. There was an urge to defecate at the onset of the pain and the patient did pass a small amount of brown, soft-formed stool. There was a feeling of fullness in the abdomen which the patient described as "gas." He obtained slight relief by belching and passing flatus. In the following two days, the pain became continuous, less acute and exacerbations were infrequent. A second acute attack occurred sixty hours following the first attack; immediately following the ingestion of a meal consisting of onions and eggs, the patient experienced similar suprapubic pains. There was again an urge to defecate which, when executed, gave a small amount of formed stool with little or no relief. Nausea was present at this time and the patient initiated vomiting by thrusting his fingers into his throat. There were exacerbations of the suprapubic pain with urge to defecate every three or four hours. Between exacerbations, pain was not completely absent but was dull in character and localized in both lower quadrants. The following day he refused all food and passed from six to eight watery stools. The patient was referred to the hospital by his physician.

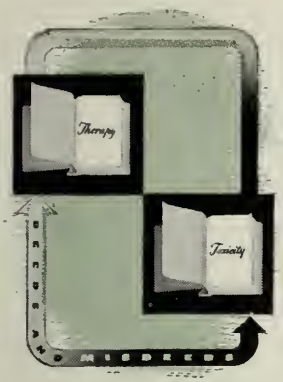
Physical Examination.—Temperature was 99.2 F., pulse was 88, respiration 20 and blood pressure 120/84. Inspection revealed a well developed, well nourished middle aged male patient lying in bed, well orientiated, cooperative and apparently in no acute distress. The chest was clear to auscultation and percussion. The heart was essentially normal. The abdomen was ovoid in contour, symmetrical and moderately distended. There was tenderness in both lower quadrants, most marked in the suprapubic region. Rebound pain was present and there was slight spasm of both recti in the lower portion. Intestinal sounds were increased in the upper quadrants and diminished in the lower quadrants. There were no scars or masses. Rectal examination disclosed a fluctuant, exquisitely tender pelvic mass located directly in the midline, separate and distinct from the prostate. Rectal ampulla was empty.

Laboratory Examination.—Urine was light straw in color, specific gravity was 1.016, negative for albumin and sugar and microscopically negative. White blood count was 21,000; differential 2 juvenile, 8 stab, 76 segmented, 14 lymphocytes. Red blood count was 4.80; hemoglobin 84 per cent; nonprotein nitrogen 36. Diastase was 25. Total proteins: 6.9; albumin 4.9; globulin 1.9. Stool examination showed occult blood 2 plus.

Course in Hospital.—The patient received parenteral chemotherapy in the form of sulfadiazine and penicillin, lactate Ringer's solution, 10 per cent glucose intravenously, a whole blood transfusion, and nasal tube drainage. The patient was operated upon fourteen hours after entrance to the hospital through a low right rectus incision. Operative findings showed there was 250 cc. of a seropurulent fluid present in the abdominal cavity. The appendix showed serosal reaction in the form of injection and edema of the serosa. The pelvis contained a good deal of semipurulent fluid. Further exploration revealed a perforated diverticulum in the sigmoid colon, partially sealed over with appendices epiploicae, which could be sutured readily. The abdominal incision was closed in layers without drainage. Postoperative course was uneventful except for slight drainage from the lower pole of the wound from the sixth to the eleventh postoperative days. He was discharged on the twenty-first hospital day.

DISCUSSION

W. E. Allen, M.D.: Here are some roentgen films of the case in question. In the upright position these did not show free gas. There is some gaseous distension of the intestines, but it was especially in



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the colon, and hardly sufficient to warrant a diagnosis of ileus.

I also have some radiographs of other patients in which diverticula are present. Sometimes diverticula are very difficult to demonstrate. In this particular case, the flat film was negative for diverticula. However, when the patient had an upper gastrointestinal examination after a barium meal, one could see at six hours multiple small diverticula and at twenty-four hours one could see that they were very adequately demonstrated. There was a retention of barium in many diverticula even after most of the barium was eliminated. These were on the right side. Spasm is a very common manifestation and what one usually does is to palpate that particular region before the spasm relaxes and the meal passes through.

Question: How often do you see these assymptomatic diverticula during the course of routine gastrointestinal series?

Dr. Allen: Fairly frequently. In fact, I think the ones that give symptoms in our experience are the exception rather than the rule. More frequently they are found in the male.

G. A. Gaikins, M.D.: Regarding the differential diagnosis, this patient was sick four or five days before he came to the hospital. During that time he had abdominal pain in the midpubic region. Of course, I know that pain from appendicitis can occur anywhere so that did not mean it was not appendicitis. When the patient was seen in the hospital, he did not appear very ill but he had a leukocytosis and moderate distention with rigidity in the lower part of the abdomen. It was thought he had appendicitis. But then, watery stools are not what one usually sees with appendicitis. This has been seen in appendicitis, however. I remember many cases with diarrhea in appendicitis, but the only time I expect it is in the terminal stages from peritoneal irritation. In this instance the problem became one of whether to operate or not. The mass in the pelvis gave the idea that there was actually an abscess. So far as diagnosis is concerned, appendicitis could not be ruled out, i. e., pelvic appendicitis or an appendiceal abscess. I, therefore, feel the operation was justified. A right rectus incision was made so that most of the peritoneal cavity might be explored.

W. H. Sinkler, M.D.: One case of diverticulitis I attended started with cramplike abdominal pain, desire for defecation, desire for urination and blood in the stools. In several other cases, the findings at some time or other were definite tenderness in the left lower quadrant of the abdomen. One case I explored immediately; the patient had a beginning peritonitis but it was not extensive. I found the perforated diverticulum, which was the source of the peritonitis, and sutured it. That patient, however, later developed evidence of mechanical obstruction. For this reason, I feel that in many cases of diverticulitis some type of colostomy should be performed. In another case I had made a preoperative diagnosis of diverticulitis. The patient had periods of remission, slight fever, diarrhea, then constipation, and after forty-eight hours of conservative treatment, I hospitalized him. His course was uneventful but eventually he developed signs of peritonitis. His abdomen was moderately distended but with no particular tenderness. After consultation with Dr. Elman, he was explored and an abscess with perforation of a diverticulum in the sigmoid colon was found. A barium enema has been given just before and some of the barium was found in the peritoneal cavity. The abscess was drained and a cecostomy performed; he made an uneventful recovery. I reviewed the literature on several occasions and decided that there were so many bizarre symptoms that the treatment depends upon the particular case. Dr. Graham, with whom I discussed the subject, said that Dr. Mayo, who was one of the first to call attention to the disease many years ago, advised conservative therapy, stating that diverticula should be left alone until they needed drainage.

Dr. Heifetz: If one reads the articles in textbooks on acute diverticulitis, one gains the impression that one has to compare it with acute appendicitis on the left side of the abdomen.

Dr. Sinkler: Sometimes the symptoms are similar, but to me the points of dissimilarity are greater. The diagnosis is much more difficult in many instances of diverticulitis, and sometimes quite confused. The sigmoid colon frequently will come way over into the right side of the abdomen, and one will then feel that he has an acute appendicitis and the signs and symptoms will be on the right side. The course of the disease is less acute than appendicitis in most cases. It is prolonged over a longer period of time. Perforations do not occur as often. The main difference is, as I gather it from the moderate experience I have had, in the manner of treatment. Whereas, when one makes a diagnosis of acute appendicitis, one prepares for immediate operation, this does not necessarily hold true with acute diverticulitis. It was noted in this case, for example, that the perforation had walled itself off. It has been suggested that perhaps one would get as good results in these cases, if one could make a fairly definite diagnosis, by not exploring these patients at all since the diverticulum does wall itself off. Since many do not go on to perforation, might one not do them more harm by going in and risking the chances of perforation? The mortality rate is higher, it seems to me, when they are explored. I have explored my cases often because I was in doubt of the diagnosis.

QUESTIONS

Is there any connection between diverticula and carcinoma of the colon?

How is the clinical palpation of a pelvic mass to be reconciled with the findings at operation of merely a collection of fluid?

If a diagnosis of acute diverticulitis is made, is

Footprints on the sands of time

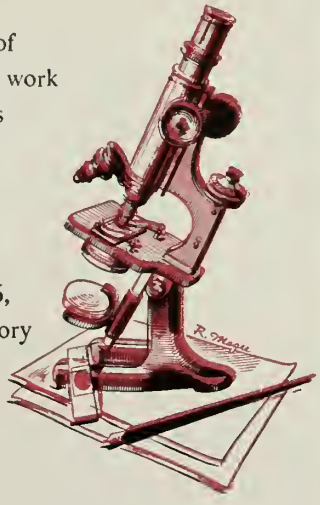
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SYMPOSIUM ON ALLERGY

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Under the Auspices of University of Kansas School of Medicine

Monday, May 5, 1947, Through Thursday, May 8, 1947, Inclusive

At Univ. of Kansas Hospital, W. 39th Street and Rainbow Blvd., Kansas City, Kansas

Sponsored By The American College of Allergists

SCHEDULE OF COURSES AND FACULTY
(Subject to minor changes)

Monday, May 5, 1947

A. M.

8:00- 9:00 Registration

9:00- 9:10 Address of Welcome
HARRY R. WAHL, M.D., Dean School of Medicine, University of Kansas

9:10-10:00 Chemistry and Allergy
RUSSELL C. MILLS, Ph.D., Ass't. Prof. of Biochemistry, School of Medicine, University of Kansas

10:00-11:00 Physiological Aspects of Allergy
KENNETH E. JOCHIM, Ph.D., Prof. Physiology, School of Medicine, University of Kansas

11:00-12:00 Antigen-Antibodies as Related to Allergy
NOBLE P. SHERWOOD, Prof. Bacteriology, School of Medicine, University of Kansas

12:00-12:15 Orientation—Chairman

P.M.

2:00- 3:00 Bacterial Allergy
FRED W. WITTICH, M.D., Minneapolis, Minnesota

3:00- 4:00 Diagnosis of Allergic Diseases
M. MURRAY PESHKIN, M.D., Instructor, College of Physicians and Surgeons, Post Graduate Medical Extension, Columbia University

4:00- 5:00 Hay Fever, Diagnosis and Management in Children
ALBERT STOESSER, M.D., Clinical Prof. of Pediatrics, University of Minnesota, Director of Allergy Clinics at University Hospital and Minneapolis General Hospital

5:00- 5:45 Hay Fever—Specific and Symptomatic Treatment
LAWRENCE J. HALPIN, M.D., Cedar Rapids, Iowa

Tuesday, May 6, 1947

A.M.

9:00-10:00 Botany
ROGER WODEHOUSE, Ph.D., Assoc. Director of Research in Allergy, Lederle Laboratories, Pearl River, New York

10:00-11:00 Bronchial Asthma, Classification and Treatment
LEON UNGER, M.D., Assoc. Prof. Department of Medicine, Northwestern University Medical School, Chicago, Illinois

11:00-12:15 Histaminic Cephalgia and Migraine
BAYARD T. HORTON, M.D., Mayo Clinic, Rochester, Minnesota

P.M.

2:00- 3:00 Bronchial Asthma in Infants and Children
M. MURRAY PESHKIN, Instructor, College of Physicians and Surgeons, Post Graduate Medical Extension, Columbia University

3:00- 4:00 Chronic Cor Pulmonale, Complication of Chronic Lung Disease
MAHLON DELP, M.D., Ass't. Prof. of Medicine, School of Medicine, University of Kansas

4:00-5:00 Allergic Rhinitis
FRENCH K. HANSEL, M.D., Assoc. Prof. Otolaryngology, Washington University

5:00- 5:45 Allergic Rhinitis, Management and Treatment
W. BYRON BLACK, M.D., F.A.C.S., Kansas City, Missouri

Wednesday, May 7, 1947

A.M.

9:00-10:00 Food Allergy
ORVAL R. WITHERS, M.D., Assoc. Prof. of Medicine, School of Medicine, University of Kansas

10:00-11:00 Common Air Molds in Relation to Allergy
HOMER E. PRINCE, M.D., Assoc. Prof. of Medicine, Baylor Univ., School of Medicine, Houston, Texas

11:00-11:30 Poison Ivy
LAWRENCE J. HALPIN, M.D., Cedar Rapids, Iowa

11:30-12:15 Meniere's Disease
BAYARD T. HORTON, M.D., Mayo Clinic, Rochester, Minnesota

P.M.

2:00- 3:00 Antibiotics in Allergy
EDWARD H. HASHINGER, Prof. of Clinical Medicine and Director of Graduate Medical Education, School of Medicine, University of Kansas

3:00- 4:00 Skin Allergy due to Fungi
CHARLES C. DENNIE, Prof. of Dermatology, School of Medicine, University of Kansas

4:00- 5:00 Dermatologic Allergy in Infancy and Early Childhood
ALBERT STOESSER, M.D., Clinical Prof. of Pediatrics, University of Minnesota, Director of Allergy Clinics at University Hospital and Minneapolis General Hospital.

5:00- 5:45 Practical Management of Contact Dermatitis
R. L. SUTTON, JR., M.D., Assoc. Prof. of Dermatology, School of Medicine, University of Kansas

7:00-10:30 Dinner and Round Table Discussion

Thursday, May 8, 1947

A.M.

9:00- 9:45 Physical Allergy
CECIL KOHN, M.D., Kansas City, Missouri

9:45-10:30 Status Asthmaticus, Treatment
ALAN G. CAZORT, M.D., Asst. Prof. of Medicine, Univ. of Arkansas School of Medicine, Little Rock, Arkansas.

10:30-11:00 Pathology of Allergy
LEON UNGER, M.D., Assoc. Prof. Department of Medicine, Northwestern University Medical School, Chicago, Illinois

11:00-11:30 Gastro-intestinal Allergy
ORVAL R. WITHERS, M.D., Assoc. Prof. of Medicine, School of Medicine, University of Kansas

11:30-12:15 Value of X-ray in Allergy, Diagnosis and Treatment
GALEN M. TICE, Assoc. Prof. of Roentgenology, School of Medicine, University of Kansas

P. M.—Laboratory and Clinical Sessions

Laboratory Session *Asthma Clinic* *Hay Fever Clinic*
Dermatology Clinic *Laboratory Technique*

The fee for the course is $50.00 payable at the registration desk, University of Kansas Hospital, W. 39th Street and Rainbow Blvd., Kansas City, Kansas. Applications for the course and for hotel reservations should be placed with the chairman of the Program Committee, ORVAL R. WITHERS, M.D., 1418 Bryant Building, Kansas City, Missouri. Doctor Withers has made arrangements for hotel reservations at the following three hotels: Bellerive, 214 East Armour; LaSalle Apartment Hotel, 922 Linwood; and Ambassador Hotel, 3560 Broadway. Only twin bedrooms are available. All physicians interested in allergy are invited to take this course.

it still advisable to resort to surgery?

Was it advisable to remove the appendix when it did not seem to be responsible?

What was the advisability, after finding a ruptured or perforated diverticulum of the sigmoid, of not putting in a drain to exteriorize the opening in the sigmoid?

Why not do something to provide rest to that section of the bowel following operation, by a colostomy or some form of opening proximal to the perforation?

DR. ELMAN: You certainly have selected a very difficult subject for discussion. The first question that might be raised is "Is diverticulitis of the colon a medical or a surgical disease?" To answer this question emphasizes the very important general truth that one should treat the patient rather than the diagnosis. Acute diverticulitis may result in a variety of pathologic symptoms, which may make either surgery or medical treatment necessary. Moreover, one should not treat a patient on the basis of statistical probability. In many series, conservative treatment resulted in a lower mortality; in others the reverse might be true. It is therefore improper to attempt to treat a patient statistically. This is particularly true in this disease because of the fact that it produces such a variety of clinical manifestations or absence of clinical manifestations. One knows that diverticulosis of the colon is a relatively frequent condition because it is so often observed during gastrointestinal examinations. These people may or may not have symptoms. In most cases diverticula are observed incidentally. Sometimes these patients have symptoms of colitis of one type or another, and the inference is that these diverticula may produce symptoms. In this group of patients, which comprise 90 per cent or more individuals in whom diverticula are present, the treatment is obviously medical. I do not know how many of these people with diverticula go through life without trouble. It might be interesting to go through the records of those with demonstrable diverticula to see if they ever had any trouble in the course of ten years.

Once a diverticulum becomes inflamed and produces acute symptoms, the patient becomes a potential surgical case. The clinical manifestations may be divided into three groups, each of which I would say called for surgical consultation. *Acute obstruction* is one, *perforation into the peritoneal cavity* is another, *bleeding from the rectum* is a third manifestation, each of which is definitely of surgical interest. Bleeding and obstruction are so often present in carcinoma that until the differentiation is made the patient is a potential surgical patient. Of these three manifestations, the one that causes the most difficulty is perforation. When the diverticulum perforates, one may see it at one of three possible stages: (1) when it produces general peritonitis or non-localizing peritonitis, sometimes called diffuse peritonitis: (2) when it presents evidence of a localized abscess; (3) when, at a later stage, there is communication with another organ, usually the bladder or vagina, which produces an internal fistula.

Perforation into the peritoneal cavity must be looked upon as a surgical condition of the first magnitude, even though not every case requires operation. Many cases of perforation are seen later after they have localized and formed an abscess, or after the abscess has drained or formed a fistula. When one sees a patient in an acute phase, how is one to tell whether the patient is going to get along without surgical interference? Although few perforated diverticula end fatally, I have seen at least one patient admitted to the St. Louis City Hospital with a history of acute abdominal pain, distension and fever in whom death occurred before any surgical treatment could be given. At autopsy there was diffuse peritonitis resulting from a perforation through an inflamed diverticulum of the sigmoid. There were many diverticula in this patient, but only one was inflamed and had perforated. The peritonitis was similar to that following perforation of acute appendicitis. If I were confronted by a patient with the signs of perforative peritonitis, I would hesitate before saying that it would surely localize and get well spontaneously. A patient in whom a diffuse peritonitis is present, and in whom the source of the infection seems to come from the left rather than the right side of the abdomen, may have diverticulitis. I certainly would not feel comfortable treating such a patient conservatively knowing that peritonitis is often fatal, whereas a perforation is amenable to surgery. If the patient is operated on it is, of course, obviously essential that the causative lesion be recognized. The symptoms may be in the midline and the surgeon may not think of diverticulitis. He makes the common diagnosis of appendicitis. He makes an incision over the appendix on the right side and he finds a certain amount of inflammation around the appendix. If the findings in the appendix are insufficient to account for the peritonitis, he must look for another cause. The perforation may not have been in the sigmoid; it may have been in a Meckel's diverticulum, or a perforated peptic ulcer. But the important thing is to be enough of a gross pathologist to know that the appendix, since it was not perforated, could not have caused all the peritoneal reaction. This was true in the present case.

Specific operative procedures should depend upon the individual case. In this case the perforation was closed and there was no need for drainage; the fact that the patient got well proved that this was good judgment. Many of these patients have a tremendous amount of edema and swelling of the colon associated with the diverticulitis, so that obstruction with distension is present; transverse colostomy or cecostomy is a very useful additional procedure. If a definite walled off abscess is present, or if the perforation cannot be closed, drainage is indicated. If the patient is not too sick and the operation is not too prolonged thereby, I see

no reason why an incidental appendectomy cannot be done safely.

The question has been raised as to whether this patient had an abscess or a localized collection of fluid. An abscess is a specific term and should be used only if there is no doubt about it. But the gradation between an abscess and a localized peritonitis, and between a localized and generalized peritonitis is often hard to draw. For example, an incision is made into the peritoneal cavity of a patient wth a perforated acute appendicitis and free fluid is found. The intestine is injected and red. Upon further exploration the appendix is reached and the fluid becomes more and more turbid. If on release of adherent intestine there is a gush of pus, it is often called an abscess. If the fluid becomes increasingly turbid as the appendix is reached without such a gush of pus, the terminology is often diffuse peritonitis. Because there are so many gradations, why make a rigid statement in all cases? It is far better to describe what is found. This particular patient must have had an accumulation of fluid anterior to the rectum because on clinical examination a mass was felt. At operation it was not an abscess, but merely a collection of fluid around which a definite abscess wall could not be demonstrated. I would say this patient had a perforation with a beginning localized peritonitis.

Diverticulitis sometimes presents manifestations similar to those of carcinoma. I have recently had two patients with intermittent obstruction in whom a barium enema showed many diverticula. At operation, the mass in both cases was grossly carcinoma and so proved to be on microscopic examination after removal. If one can be sure it is not a carcinoma, a short-circuiting operation or colostomy is obviously indicated rather than a resection. Bleeding per rectum is a definite manifestation of diverticulitis which it shares with carcinoma. It was found in several cases under discussion today. A sufficient number of patients have been observed with rectal hemorrhage alone in whom diverticula were demonstrated radiologically, with asymptomatic survival. I am glad to know that Dr. Sinkler noted rectal bleeding in his cases.

Question: Are there many cases of recurrence?

Dr. Elman: Apparently not. Once they have an acute episode and have recovered from it, they seem not to have another one. Either an immunity develops or it is just rare.

ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACTS

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 4, April, 1947.

THE OPPORTUNITY

Tuberculosis, which remains a major health problem all over the world, has been under concentrated attack in this country for over 40 years. The greatest effort ever made to eradicate tuberculosis in livestock in the United States was begun about 1900. The result is that today the milk we drink comes from tuberculosis-free dairy herds and our meat comes from non-tuberculous animals.

Viewed from the standpoint of all humanity, this remarkable achievement is little more than an impregnably secured beachhead; but for Americans it has meant almost complete elimination of all human forms of bovine tuberculosis (largely tuberculosis of the bones). Ultimately other countries must also reduce animal tuberculosis.

Today, hospitals are participating in the greatest direct effort ever made to eradicate tuberculosis in humans. This movement began rather slowly about 20 or 25 years ago with tuberculin testing programs for selected groups. This was accompanied by construction of numerous sanatoriums to care for discovered cases. Soon it was learned that physical diagnosis would not discover early cases, but that the X-ray could. There has been real progress. National tuberculosis mortality rates have declined and some areas have achieved mortality lows which were not considered possible 40 years ago.

Despite all this, it was not until about ten years ago that the prospect of complete eradication became a foreseeable probability. The earlier programs, depending on tuberculin testing, physical diagnosis and limited use of the X-ray, were too cumbersome and expensive for universal coverage and diagnosis of cases in their early stages. These handicaps were overcome by the development of photofluorographic X-ray equipment and there now appears to be justifiable optimism toward the problem of tuberculosis eradication.

The Council on Professional Practice of the American Hospital Association believes that the immediate need is to extend the practice of routinely X-raying chests. This should be done in many different population groups, but the council is, of course, primarily concerned with the hospital program. A few statistics and facts may be worth repeating.

Hospital admissions now exceed 16,000,000 a year. There are other undetermined millions who are seen in outpatient clinics. These two groups lend themselves to routine radiography; they are in hospitals which have the X-ray equipment and the specialists; there is a minimum of inconvenience to the patient; there is a minimum of expense to the procedure; the percentage of cases found is higher than in other large cross sections of the population. Furthermore, many of these persons would not be reached by programs directed at industrial or other population groups. Finally, this is one of the largest organized groups available for routine programs.

Hospitals which routinely X-ray chests of admissions, outpatients and employes give additional service to their patients and provide a new protection to the hospital. Infectious cases may be segregated from other patients; the employee knows with which patients he must use added



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precautions to protect himself; in up to ten per cent of patients non-tuberculous conditions may be revealed. It is not intended here to exhaust the arguments in favor of routine chest radiography in hospitals. Those described are important enough to justify the procedure, if the routine is practicable —administratively and economically. It is noteworthy that the Council program stresses practicability rather than theory.

Two years ago the Council surveyed all hospitals to determine the extent of routine radiography. Of 104 hospitals reporting programs, further checking suggests that only a moderate per cent had a routine considered adequate today. On the other hand, a few weeks ago at a regional hospital meeting a dozen or more administrators indicated their hospitals are now X-raying chests routinely. In one state two photofluorographic units have been purchased by local tuberculosis associations and placed in hospitals, and four more are on order, or have had funds earmarked for the purpose. The U. S. Public Health Service has approved, or will approve, funds for state and local health departments with which to place several hundred X-ray units in hospitals. Many hospitals are setting up the programs on their own or other resources.

Hospitals generally are now much more interested than they were a few years ago in making their facilities available, not only for the care of tuberculosis cases, but for other long-term treatments, such as those required for psychiatric patients and convalescents. It has been difficult to increase this type of service because of crowded conditions in hospitals.

The institution of case-finding routine radiography by hospitals, however, will bring general hospitals face to face with the necessity of providing facilities for temporary handling of some of the discovered cases.

Routine chest X-raying should not be deferred simply because of the fact that cases of tuberculosis will be discovered. These patients are in hospitals for other reasons in the first place. Failure to discover tuberculosis results in these undiagnosed cases of tuberculosis exposing other patients and employees to tuberculosis. Until new construction permits adequate care for tuberculosis itself, hospitals should be able, with the aid of the manual "The Management of Tuberculosis in Hospitals,"* to accept with safety tuberculosis patients for non-tuberculosis treatment.

Human tuberculosis is under the most severe attack ever directed at it. The best thinking today appears to be that eradication will be achieved only after a long pull; that more intensive discovery programs will continue to increase the known cases for years to come; that the sensible course is to create the programs and facilities necessary now to maximum discovery and adequate treatment.

*Published by the American Hospital Association, Revised Edition, 1946.

Many national, state and local organizations are coordinating their efforts to eliminate this disease. The hospital has a dominant part in the program. It can become a major case-finding agency by routinely X-raying the chests of all patients on admission, all outpatients and all employees.

The Opportunity, Robin C. Buerki, M.D., Hospitals, August, 1946.

BOOK REVIEWS

Textbook of Gynecology. By Arthur Hale Curtis, M.D., Professor and Chairman of the Department of Obstetrics and Gynecology, Northwestern University Medical School; Chief of Gynecological Service, Passavant Memorial Hospital, Chicago. Fifth Edition with 455 Illustrations, Chiefly by Tom Jones, Including 36 in Color. W. B. Saunders Company. Philadelphia and London. 1946. Price $8.00.

Curtis' "Textbook of Gynecology," now in its 5th edition, retains all of the well correlated data that has made this work so excellent as a text for students and, in addition, there has been considerable worthwhile revision.

The first few chapters are essentially the same as those in previous editions. Especially worthy of commendation is the detailed first chapter dealing with the anatomy of the female genitalia. There has been some improvement on the material on ovarian tumors, mainly the result of additional photomicrographs. Throughout the work, a great increase in the number of appropriate illustrations has added much of value.

Although practically unchanged, the chapters on endometriosis, carcinoma of the cervix, and carcinoma of the body of the uterus are deserving of signal praise.

To this reviewer, the only serious failing in Curtis' work is the somewhat sketchy coverage of the treatment of cervical lesions. The use of the cautery, for instance, as well as the sturmdorf operation are not illustrated. In general, the figures portraying surgical procedures are well done, but perhaps too greatly condensed. However, in order to keep the content of the text within a reasonable number of pages, some condensing of certain topics was necessary.

Even with its few shortcomings, this book ranks at, or close to, the top of the list of gynecologic texts for both students and practitioners. W. V.

Peripheral Vascular Diseases. By Edgar V. Allen, Nelson W. Barker and Edgar A. Hines, with associates in the Mayo Clinic and Mayo Foundation. 386 illustrations, 7 in color. W. B. Saunders Company, Philadelphia, 1946. Price $10.00.

Time was when the field with which this book deals was vaguely connected, in the minds of most physicians, with the dorsal artery of the foot, and interest in it was exhausted when one had determined the state, or perhaps more accurately the presence or absence of pulsation, in that artery.

A mere glance at the table of contents of this book will show the harassed physician, intent upon keeping up with the literature, how much all that has changed. Fortunately, careful and capable editorial work has given the book a clarity of structure which will make it useful to almost every potential reader.

For the student, and for the physician with a scholarly bent—and time—there are extensive discussions of the anatomy and physiology of the peripheral vessels and related subjects, such as sweat secretions. One chapter is given over to an unusually detailed description of the vast array of special investigative methods employed in this field.

The busy practitioner will find, in the larger clinical

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section, answers to the questions which frequently plague him in dealing with peripheral vascular ills. If he finds more than one answer to many of his questions, he will ascribe this to the relative newness of the field.

Almost everything from the aorta to the nailfold capillaries and back again is dealt with competently and completely in the various clinical chapters. Certain subjects, of some practical importance, which are glossed over or ignored in standard texts, are here extensively discussed. A good example is chronic lymphedema, a subject of limited statistical importance, but of great weight to the individual patient and to his physician. Finally, two sections, one dealing with the clinical diagnosis of peripheral vascular disease and the other with medical and surgical treatment technics, both unusually complete, must be given particular mention.

The book is highly recommended. M. A. M.

Anesthesia in General Practice. By Stuart C. Cullen, M.D., Head of Division of Anesthesiology, Department of Surgery, State University of Iowa Hospitals; Associate Professor Surgery (Anesthesiology), State University of Iowa College of Medicine. Chicago. The Year Book Publishers, Inc. 1946. Price $3.50.

Dr. Stuart Cullen's "Anesthesia in General Practice" is an important book for the experienced anesthetist as well as the student. The nail-on-the-head simplicity enables any physician to acquire a practical understanding in the use of anesthetic drugs. It is comprehensive in that all drugs and technics are presented thoroughly, avoiding ponderous discussions that usually contribute nothing to every day usage. Dr. Cullen emphasizes the individualization of the patient in the choice of agent stressing the disastrous results which often follow routinization in anesthesia. The choice of agent is often a perplexing problem and the wrong choice may be two strokes against the patient at the outset. In this book the anesthetist will find many illuminating answers to these problems as well as a wealth of important practical considerations gleaned from the obviously great personal experience of the author. S. D.

Medical Research, A Symposium, Edited by Austin Smith, M.D., 17 Illustrations, including 10 subjects in color. Philadelphia, J. B. Lippincott Co. 1946. Price $5.00.

This little book under the editorship of Austin Smith consists of eight essays as follows: "Fundamentals of Medical Research," Torald Sollmann, M.D.; "Some Practical Aspects of Research," Austin Smith, M.D.; "The Laboratory," Herbert O. Calvery, Ph.D.; "The Manufacture and the Development of New Drugs," S. DeWitt Clough; "Medical Research in the University Medical School," Eldon M. Boyd, M.D.; "Clinical Research With a Notebook," Walter C. Alvarez, M.D.; "The Publicizing of Scientific Research," Morris Fishbein, M.D.; "Photography in Medical Research," Milton G. Bohrod, M.D., and H. Lou Gibson.

No profound secrets of medical research are divulged and most medical men will be familiar with the ideas presented. To the physician reader, the most interesting essays no doubt would be "Clinical Research With a Notebook" by Alvarez and "Photography in Medical Research" by Bohrod and Gibson. The latter essay contains some very excellent illustrations. Unfortunately, the equipment required to make really good clinical photographs is still too complex and time consuming for the average physician to use. However, the authors seem to be quite competent to write a technical manual on medical photography and illustration, a text which this reviewer would welcome.

In general, this present volume reads easily but it could contain more meat. B. S. P.

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THE JOURNAL

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APRIL, 1947

EDITORIALS

STUDENT NURSE ENROLLMENT

An intensified effort to secure student nurse enrollment in nurse training schools throughout the country is being made during 1947. This worth while cause should be supported by all members of the medical profession.

Agencies assisting in this nationwide effort are the American Medical Association, the American Hospital Association, the American College of Surgeons, the American Red Cross, various nursing organizations and government agencies.

MISSOURI MEDICAL SERVICE ANNUAL SESSION

Carl F. Vohs, M.D., St. Louis, was reelected president of Missouri Medical Service, Inc., at the annual session of the organization. Other officers elected were: First vice president, Howard B. Goodrich, M.D., Hannibal; second vice president, Mr. Louis W. Reps, Springfield; treasurer, Mr. George M. Berry, St. Louis; secretary, R. O. Muether, M.D., St. Louis.

Members of the board of trustees elected for a three year term to fill expired terms were: R. W. Kennedy, M.D., Marshall; Mr. Chester G. Starr, Jefferson City; W. A. Bloom, M.D., Fayette; Mrs. Edward Walsh, St. Louis; Mr. Ray McCarthy, St. Louis; M. J. Lonsway, M.D., St. Louis; Llewellyn Sale, M.D., St. Louis.

The president, Dr. Vohs, reported that $170,304.50 had been paid to physicians for services rendered since the beginning of the plan, April 15, 1945, through December 31, 1946, and that 67,988 persons were enrolled as of December 31, 1946.

BRITISH MEDICAL JOURNAL

The *British Medical Journal,* which has been received in the Association office for many years on an exchange basis, is now reduced to two mimeographed pages because of the coal and power shortages in England.

Two editorials from that journal deserve a most careful consideration. Just a short time ago the JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION might have been in the same predicament if the coal strike in this country had been permitted to continue. The editorials from the *British Medical Journal* follow:

"FREEDOM TO PRINT. From coal to control was a bewildering transition. Our duty, as that of everyone, was to save power by ceasing to use fuel for printing the *B. M. J.* Ministry of Fuel and Power informed us there was 'no objection' to a duplicated issue so long as electricity was not used. We erred in interpreting this as 'permission,' because no permission was needed to do something not illegal. We are not bound by the agreement between the Ministry and the Periodical Trade Press and Weekly Newspaper Proprietors Association (P. P. A.). P. P. A. in 1938 refused us membership on grounds we were not an independent paper. The telephone buzzed last Friday with indirect protests from P. P. A., not, of course, because we had used electricity, but because we had displayed some initiative in coming out at all. To attempt to introduce restrictive practices under cover of a national crisis was a pernicious abuse of power, and to attempt it under the formula of 'fair play' was something which would not deceive even an admirer of *The Fifth Form at St. Dominic's.* As Francis Williams, Adviser on Public Relations to the Prime Minister, said in his book (1946) *Press, Parliament, and People:* 'I am convinced that no Government, however well-intentioned, can be trusted with power to control the Press.' And if manual labour may be used to propel an artificial hare round a greyhound track, surely willing muscles may turn the handles of the duplicators which print this sheet in B. M. A. House. The *Times* has said that the freedom of the press 'is not a privilege of the newspaper but a fundamental liberty of the subject.' Our duty to subscribers is to preserve that liberty. In this issue we continue to serve the National interest by informing doctors of places where people need their help. We therefore give much of our available space to announcements of vacancies in government and public health services and in hospitals. The Editor is again indebted to those who, under the Secretary of the B. M. A., have cut the stencils and duplicated this week's 'Pemmican'."

"COAL AND MEDICINE. Shivering, we tend to think of coal only as fuel. Coal is Medicine as well. Runge discovered in 1834 carbolic acid, a coal-tar product. With carbolic Lister stoked the fires of surgery for posterity. Perkin's discovery of the aniline dye mauve in 1856 was the starting point of modern medicine. Weigert in 1871 stained bacteria with the aniline dyes of coal-tar, and Koch soon followed suit. Ehrlich hit upon the idea that certain cells had chemical affinity for certain dyes. This led to differential staining of tissues and the birth of chemotherapy. The red dye-stuff prontosil, patented in 1932, began a revolution in medical treatment—with the sulpha drugs. The malarial

remedies mepacrine and paludrine depend for synthesis on coal-tar distillates. From naphthalene comes the synthetic analogue of vitamin K. Phenol is the chemical parent of a common purgative. of aspirin, and of the synthetic oestrogen stilboestrol. Coal gives doctors their most potent remedies and research workers essential chemical instruments. And if nylon that comes from coal is wanted by colliers' wives for stockings the surgeon also wants it for his sutures."

NEWS NOTES

Otto W. Koch, M.D., Clayton, was guest speaker at the Clinton (Illinois) County Medical Society at Breese, Illinois, on March 12. His subject was "Orolaryngology for the General Practitioner."

George W. Forman, M.D., St. Joseph, was named superintendent of State Hospital No. 2, St. Joseph, on March 15 by Mr. Samuel Marsh, director of the State Department of Public Health and Welfare.

Missouri State Medical Board examinations will be given by the State Board of Medical Examiners of Missouri on May 26, 27, 28, 1947, at the St. Louis University School of Medicine, St. Louis, and on June 9, 10, 11, 1947, at Washington University School of Medicine.

DEATHS

Kemp, Thomas J., M.D., Clayton, a graduate of the George Washington School of Medicine, 1900; member and former president of the St. Louis County Medical Society; aged 72; died January 23.

Ringen, August H., M.D., Sweet Springs, a graduate of Marion-Sims College of Medicine, 1899; member of the Saline County Medical Society; aged 77; died January 24, 1947.

Knabb, Frank P., M.D., Valley Park, a graduate of Barnes Medical College, 1902; Fellow of the American Medical Association; member of the St. Louis County Medical Society; aged 72; died January 29.

Williams, Reuben H., M.D., Moberly, a graduate of the National University of Arts and Sciences Medical Department, 1916; member of the Chariton-Macon-Monroe-Randolph County Medical Society; aged 62; died February 6.

Yater, Joseph M., M.D., Nevada, a graduate of Marion-Sims College of Medicine, 1901; a member of the Vernon-Cedar County Medical Society; aged 79; died February 6.

Edens, Louis M., M.D., Cabool, a graduate of the University Medical College of Kansas City, 1907; aged 62; died February 10.

Elkins, C. Bryant, M.D., Springfield, a graduate of Missouri Medical College, 1885; aged 85; died February 25.

Baker, Wilbur A., M.D., Kansas City, a graduate of the University of Kansas School of Medicine, 1917; Fellow of the American Medical Association; member of the Jackson County Medical Society; aged 54; died February 25.

ORGANIZATION ACTIVITIES

FINANCIAL STATEMENT FOR 1946

R. A. LENNERTSON & COMPANY
INDEPENDENT PUBLIC ACCOUNTANTS
SAINT LOUIS, MISSOURI

ROBERT A. LENNERTSON
CERTIFIED PUBLIC ACCOUNTANT

MEMBER—AMERICAN INSTITUTE OF ACCOUNTANTS

March 19, 1947.

Missouri State Medical Association,
634 North Grand Boulevard,
St. Louis, Missouri.

Gentlemen:

An examination has been made of the accounts of the Missouri State Medical Association for the year 1946 and presented herewith is a report on the examination together with the following attached exhibits:

Exhibit A. Balance Sheet.
Exhibit B. Statement of Income and Expenses.
Exhibit C. Statement of Committees and Meeting Expenses.
Exhibit D. Dues Receivable and Membership by Counties

SCOPE OF EXAMINATION

The Balance Sheet at December 31, 1946, and the Statement of Income and Expenses for the year 1946 have been reviewed. Examinations or tests were made of accounting records of the Association in the manner and to the extent deemed appropriate under the circumstances, without making a detailed audit of the transactions.

Cash in banks at December 31, 1946, as shown by the books was reconciled with the regular monthly bank statements and confirmation letters received direct from the depositaries. The petty cash fund of $25.00 and United States Savings Bonds with a par value of $45,000.00 were verified by physical inspection. Recorded cash receipts for dues, rentals, JOURNAL income and interest on bonds, were traced in total into the bank account as deposits. Disbursements for the year were substantiated by an inspection of paid cheques, purchase invoices and other data on file. Selective tests were made of the income and expense accounts for the period. It was noted that space was contributed by the JOURNAL for publication of advertisements by the United States Treasury in connection with U. S. Savings Bonds.

STATEMENT OF INCOME AND EXPENSES

After meeting all ascertained expenses, the financial result of the Association's activities for the year 1946 was an excess of income in the amount of $13,990.33 as set forth in Exhibit B. Members' dues are taken into income on a cash basis as collected whereas all other accounts are maintained on the accrual basis.

BALANCE SHEET

Exhibit A presents the asset and liability accounts of the Association at December 31, 1946, and discloses a sound financial position. Comments follow on the more important Balance Sheet accounts not previously discussed.

Accounts receivable from JOURNAL advertisers were reviewed and are summarized below as to date of charge:

Charges arising in December, 1946	$1,274.71
Charges arising in November, 1946	59.10
Total	$1,333.81

Unpaid Members' Dues in the sum of $282.00, offset by a reserve account in a like sum, represent 1946 dues which were received in January, 1947. Other delinquent dues were charged off at December 31, 1946, and the individuals dropped from membership in accordance with the by-laws. A summary of Dues Receivable and Membership by Counties is presented in Exhibit D.

As in past years, Furniture and Fixtures are stated in the fixed sum of $1,000.00. Purchases during the year were charged to expense in lieu of depreciation.

The records and data on file were carefully reviewed for liabilities at December 31, 1946, and it is believed that all current liabilities are included in the Balance Sheet. There is a contingent liability in the sum of $900.00 on three malpractice suits reported pending against members. The Association is required to furnish assistance in an amount not to exceed $300.00 in each case under the provisions of its by-laws.

Advance payments in the sum of $2,083.80 had been made by advertisers and exhibitors at the close of the year and these payments will be taken into income when earned in 1947.

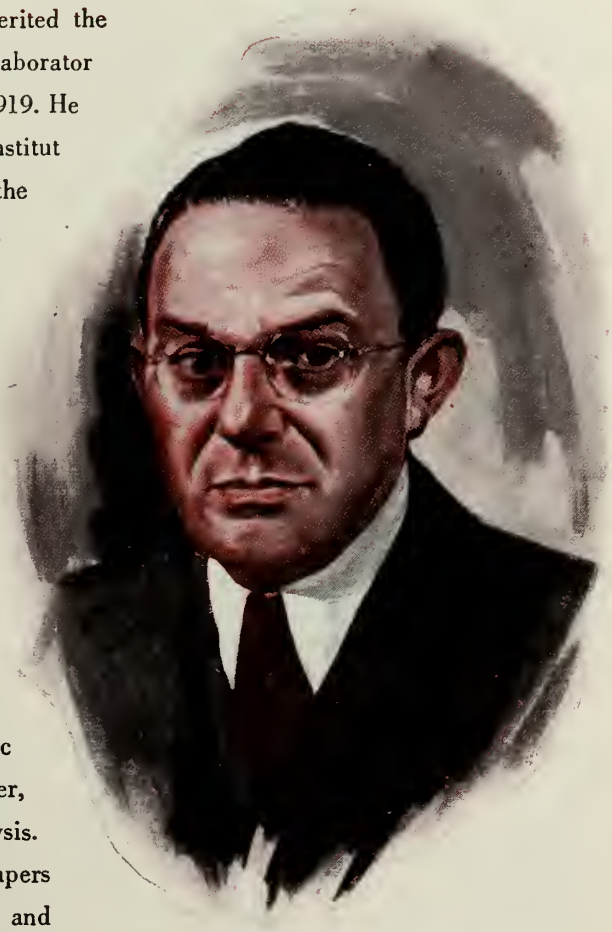
GENERAL

The following insurance was in force at the close of the year:

Insurance On	Type of Coverage	Amount
Furniture and Fixtures	Fire	$ 2,000.00
Treasurer	Fidelity Bond	20,000.00
Secretary	Fidelity Bond	1,000.00
Executive Secretary	Fidelity Bond	1,000.00
Employee	Life-Endowment Policy with Disability Benefits (cash value $1,-. 869.10)	12,000.00

Men and Amino Acids

Max Bergmann may be said to have inherited the mantle of Emil Fischer, whose principal collaborator he was at the time of the latter's death in 1919. He became Director of the Kaiser Wilhelm Institut für Lederforschung and, later, Member of the Rockefeller Institute for Medical Research. In 1925 he identified the dehydropeptides, substances of physiological interest which serve as substrates for a highly specific enzyme system. His "carbobenzoxy method", announced in 1932, provided a new, elegant technique for the synthesis of peptides. This led to the proposal of a system for step-by-step degradation of polypeptides, permitting successive removal and identification of individual amino acids. His investigations on protein structure and the specificity of proteolytic enzymes fostered the development of finer, more precise methods of amino acid analysis. Bergmann's more than 300 published papers contributed brilliantly to modern protein and carbohydrate chemistry, which are part of the foundation on which medical science rests.



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The records of the Association have been well maintained during the year 1946 in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding period.

Yours very truly,
R. A. Lennertson,
Certified Public Accountant.

Exhibit A

Missouri State Medical Association
December 31, 1946
BALANCE SHEET

Assets		
Cash:		
Mercantile-Commerce Bank and Trust Company (Treasurer's Account)	$15,519.96	
Mercantile-Commerce National Bank (Secretary's Account)	468.02	
Petty Cash Fund	25.00	$16,012.98
U. S. Savings Bonds Series G—Cost and Par Value		45,000.00
Accounts Receivable—Advertisers		1,333.81
Dues Receivable—Exhibit D (Paid January, 1947)		282.00
Furniture and Fixtures		1,000.00
Prepaid Expense:		
Advances for Traveling Expenses		137.63
		$63,766.42
Liabilities		
Accounts Payable:		
Supplies and Expenses	$ 1,162.18	
Federal and City Withholding Taxes	636.24	$ 1,798.42
Deferred Credit to Income:		
Advance Payments by Advertisers	$ 43.80	
Advance Payments by Exhibitors	2,040.00	2,083.80
Contingent Liability to Members on three malpractice suits—$900.00		.....
Reserve for Uncollected Dues		282.00
Reserve for Future Activities:		
Balance January 1, 1946	$45,611.87	
Add: Excess of Income over Expenses for the year 1946 per Exhibit B	13,990.33	59,602.20
		$63,766.42

Exhibit B

Missouri State Medical Association
Statement of Income and Expenses for the Year 1946

Particulars	General Activities	Journal Publication	Together
INCOME:			
Dues Received (includes $1.00 per member annually for The Journal)	$37,167.00	$ 2,623.00	$39,790.00
Rentals—Annual session exhibit space	5,230.00		5,230.00
Rent from Sub-tenant (office space)	540.00		540.00
Subscriptions to The Journal—nonmembers		56.30	56.30
Advertising Space—The Journal		25,703.30	25,703.30
Interest on U. S. Savings Bonds	750.00		750.00
Total Income	$43,687.00	$28,382.60	$72,069.60
EXPENSES:			
Officers' Salaries:			
Executive Secretary	$ 3,600.00	$ 1,800.00	$ 5,400.00
Treasurer	1.00		1.00
Office Salaries	8,316.22	4,158.61	12,474.83
Employee's Retirement Insurance Premium	906.96		906.96
Office Rent and Light	2,150.95		2,150.95
Postage	195.26	374.26	569.52
Stationery, Printing and Office Supplies	1,253.76		1,253.76
Directories and Clipping Service	389.18		389.18
The Journal—Paper, Printing, Mailing, Etc.		11,877.53	11,877.53
Telephone and Telegraph	1,148.34		1,148.34
Insurance—General	60.00		60.00
Fees, Taxes and General Expenses	624.45		624.45
Award to Member	203.33		203.33
Malpractice Defense Aid	300.00		300.00
Cash Discounts to Advertisers		78.44	78.44
Commissions on Journal Advertising		1,565.80	1,565.80
Traveling Expense—Executive Secretary	849.67		849.67
Traveling Expense—Field Secretary	886.34		886.34
Traveling Expense — General	536.76		536.76
Committee and Meeting Expenses (Exhibit C)	16,465.00		16,465.00
Equipment Purchases and Repairs in lieu of Depreciation	337.41		337.41
Total Expenses	$38,224.63	$19,854.64	$58,079.27
Net Income for the Period	$ 5,462.37	$ 8,527.96	$13,990.33

Exhibit C

Missouri State Medical Association
Statement of Committee and Meeting Expenses for the Year 1946

Annual Session		$ 4,688.24
Council meetings	$1,440.90	
Councilors' expenses	1,130.43	
Delegates to A. M. A.	1,129.72	
Women's Auxiliary	541.48	4,242.53
Committees:		
Control of venereal disease	$ 14.80	
Industrial health	30.00	
Maternal welfare	2.63	
Medical economics	32.38	
Post-graduate instruction	71.90	
Public policy and relations	$ 393.90	
Public relation — professsional fees	6,837.16	7,231.06
Veterans' care	151.46	7,534.23
Total		$16,465.00

Exhibit D

Missouri State Medical Association
Dues Receivable and Membership by Counties
December 31, 1946

MEMBERSHIP

Counties	Total	Junior	Active	Honor	1946 Dues Paid Jan. 1947	Prepaid Dues
Andrew	6		6			
Audrain	14		12	2		$ 180
Barry-Lawrence-Stone	29	1	26	2		
Barton	8		6	2		
Bates	10		9	1		
Benton	2		2			
Boone	47		44	3		
Buchanan	103		83	20		
Butler	20		18	2		15
Caldwell-Livingston	14		14			
Callaway	15		10	5		
Camden	2		2			30
Cape Girardeau	34		34			180
Carroll	4		4			
Carter-Shannon	6		6			75
Cass	14		12	2		
Chariton-Macon-Randolph-Monroe	44		34	10		
Christian	5		4	1		
Clay	24		24			150
Clinton	7		7			
Cole	29	1	26	2		30
Cooper	13		13			
Dallas-Hickory-Polk	10		9	1		
DeKalb	2		2			
Dunklin	26		23	3		
Franklin	23		23			30
Greene	114	1	105	8		
Grundy-Daviess	16		13	3		
Harrison	3		3			
Henry	16		14	2		
Holt	6		4	2		
Howard	6		6			
Jackson	629	19	501	109	$ 86	
Jasper	65		55	10		
Jefferson	16		15	1		
Johnson	12		12			
Laclede	11	1	9	1		146
Lafayette	22		22			
Lewis-Clark-Scotland	7		7			38
Lincoln	8		6	2		
Linn	7		6	1		

Marion-Ralls	25		24	1		
Mercer	9	2	5	2		97
Miller	5		5			75
Mississippi	8		7	1		
Moniteau	6		6			90
Montgomery	6		5	1		
Morgan	3		3			45
New Madrid	10		10			
Newton	14		14			
Nodaway-Atchison-Gentry-Worth	28		28			255
North Central (Adair, Schuyler, Knox, Sullivan, Putnam)	20		17	3		
Pemiscot	14		14			
Perry	6		6			
Pettis	31		27	4		
Phelps-Crawford-Dent-Pulaski	28	1	25	2		
Pike	13		10	3		
Platte	7		6	1		30
Ray	7		7			
St. Charles	16		16			15
St. Francois-Iron-Madison-Washington-Reynolds	38		35	3		
Ste. Genevieve	4		4			60
St. Louis County	235	5	215	15		90
St. Louis Medical Society	1,317	123	1,134	60	196	519
Saline	20	1	18	1		
Scott	13		13			
Shelby	6		5	1		
South Central (Howell, Oregon, Texas, Wright, Douglas)	25	1	23	1		150
Stoddard	4		4			
Taney	1		1			
Vernon-Cedar	20		14	6		
Webster	2		2			
Totals	3,390	156	2,934	300	$282	$2,300

BUDGET FOR 1947

Salaries	$20,700.00
Printing of JOURNAL	12,000.00
Defense	500.00
Postage and express	750.00
Postgraduate Course	500.00
Printing, stationery, etc.	1,000.00
Travel, Executive Secretary	900.00
Travel, Field Secretary	1,400.00
Telephone and telegraph	1,000.00
Office rent and light	1,750.00
Meetings and committee expense	9,500.00
Public Relations	9,000.00
Insurance annuity	950.00
Miscl.—General expense	1,500.00
Office furniture and fixtures	200.00
Woman's Auxiliary	500.00
Total	$62,150.00

SOCIETY PROCEEDINGS

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on February 12 at 8:30 p. m. at the Health Center, St. Louis County Hospital, Clayton.

Upon motion of Eugene Brown, M.D., it was decided that a period of the last meeting of each year be set aside to honor the deceased members of that year.

Dr. Sutter appointed A. W. Westrup, M.D., on the necrology committee to replace Thomas J. Kemp, M.D.

Dr. Sutter reported the death of two members during January, both past presidents of the Society, Dr. Thomas J. Kemp, M.D., and F. P. Knabb, M.D.

B. Y. Glassberg, M.D., spoke on "Insulin: How and When to Use It." It was an excellent presentation. The paper was discussed by Drs. Roy A. Walther, Sr., Richard Sutter, Richard Graeser, Paul Hagemann, John D. Hayward, Lois Wyatt, Fred Teiber, John R. Daly, Louis Howe, E. O. Breckenridge, Robert Kingsland, Guy Magness and E. C. Holscher.

The meeting adjourned at 9:50.

MARTYN SCHATTYN, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

J. F. JOLLEY, MEXICO, COUNCILOR

Cooper County Medical Society

The staff of the St. Joseph's Hospital, Boonville, and the Cooper County Medical Society met at the St. Joseph's Hospital, January 17, at 7:30 p. m. with the following present: W. E. Stone, M.D., Arie C. van Ravenswaay, M.D., Donald N. Morgan, M.D., R. L. Evans, M.D., T. C. Beckett, M.D., W. H. Ziegler, M.D., G. W. Winn, M.D., J. C. Tincher, M.D., Boonville; G. L. Chamberlain, M.D., New Franklin; J. W. Gardner, M.D., Glasgow, and Raymond McIntyre, St. Louis.

Donald N. Morgan, M.D., discussed "The Rh Blood Factor and Some of Its Implications in the Field of Obstetrics and the Giving of Transfusions."

Mr. Raymond McIntyre spoke on the present activities of the Association.

The following officers were elected for 1947: President, Donald N. Morgan, M.D.; vice president, Arie C. van Ravenswaay, M.D.; secretary-treasurer, J. C. Tincher, M.D.; delegate, G. W. Winn, M.D.; alternate delegate, T. C. Beckett, M.D.

J. C. TINCHER, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR

Sixth Councilor District

Physicians of the Sixth Councilor District of the Association met in the afternoon and evening of February 17 at the Bothwell Hotel, Sedalia, with R. W. Kennedy, M.D., Marshall, Councilor, presiding. Approximately sixty physicians were in attendance during the two sessions.

Four scientific papers by Paul O. Hagemann, M.D., St. Louis; Ralph R. Coffey, M.D., Kansas City; Richard B. Schutz, M.D., Kansas City, and M. Pinson Neal, M.D., Columbia, were presented in the afternoon.

A social hour preceded the evening dinner meeting and program which centered around discussions of the various activities now carried on by the Association. Howard B. Goodrich, M.D., Hannibal, President of the Association, served as moderator for the evening program.

R. W. KENNEDY, M.D., Councilor

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society held a dinner meeting at the Antlers Cafe, Mountain Grove, on February 21, with the following members and visitors present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., R. W. Denney, M.D., H. G. Frame, M.D., A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; R. T. Harsh, M.D., Houston; C. F. Callihan, M.D., Willow Springs; E. C. Bohrer, M.D., West Plains; Deborah Doan, M.D., Bakersfield, and Roland Langston, M.D., and J. L. Johnston, M.D., Springfield.

After dinner the president, Dr. Mott, called the meeting to order in the office of Dr. Ryan.

The following resolution on the death of L. M. Edens, M.D., Cabool, was adopted:

"Resolved, By the South Central Counties Medical

Society in meeting February 21, 1947, at Mountain Grove, that in the passing of our esteemed colleague, Dr. L. M. Edens, Cabool, we have lost a valuable member; that the community that he has served so well and so long has lost a trusted counselor, and that his family has lost a loving husband and father, and we are reminded that once before, during the first World War we mourned his death for several months and then later rejoiced at his return from a German prison camp, but this time we know that there can be no return from the land to which he has gone, and be it further

"*Resolved,* That a copy of these resolutions be sent to the bereaved family and to the Cabool paper for publication, and be spread upon the records of the Society."

Dr. Langston gave a talk on "The Diagnosis of the Acute Abdomen" and Dr. Johnston spoke on "Complications of Delivery." Both speakers brought out many conditions that are often met and all went home feeling more competent to meet such conditions.

A vote of thanks was given the speakers and the meeting adjourned to meet in Cabool on March 21.

A. C. Ames, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

Scott County Medical Society

The Scott County Medical Society held a monthly dinner meeting at the Rustic Rock Inn in Sikeston on February 14, with H. B. Throgmorton, M.D., President, presiding.

Members present were: W. O. Finney, M.D., G. A. Sample, M.D., Chaffee; H. A. Dunaway, M.D., T. C. McClure, M.D., E. J. Nienstedt, M.D., H. B. Throgmorton, M.D., E. D. Urban, M.D., A. D. Martin, M.D., Sikeston. Rusby Seabaugh, M.D., and Frank Hall, M.D., Cape Girardeau, were guests.

Dr. Finney was elected as delegate to the Association Annual Session and Dr. Nienstedt was elected alternate delegate.

The transfer of C. J. Mellies, M.D., Sikeston, from the Barry-Lawrence-Stone County Medical Society was accepted.

Drs. Dunaway and Urban were appointed to the program committee for the next month and it was decided to hold the next meeting at the Sikeston Country Club.

Dr. Seabaugh gave a most interesting talk on "Pathology of the Genito-urinary Tract Encountered Without Urinary Findings."

A. D. Martin, M.D., Secretary.

Tenth Councilor District

The 71st meeting of the Southeast Missouri Medical Association in conjunction with the Tenth Councilor District of the Missouri State Medical Association was held the afternoon and evening of March 11 at Cape Girardeau with fifty-three physicians in attendance.

The afternoon program began with a meeting of the delegates from the Tenth Councilor District to the Missouri State Medical Association with the Councilor from the Tenth District, Paul Baldwin, M.D., Kennett.

The scientific phase of the afternoon session consisted of two excellent papers by Willard M. Allen, M.D., and R. O. Muether, M.D., St. Louis, and five case presentations by physicians of Cape Girardeau.

Following an enjoyable social hour at the conclusion of the afternoon program, the evening session began with a dinner. After the dinner, a round table discussion of "Your State Association on the Job" with Howard B. Goodrich, M.D., Hannibal, President of the Missouri State Medical Association, as moderator, and Curtis H. Lohr, M.D., St. Louis, chairman of the Committee on Veteran Care of the Association, as principal speaker, rounded out the day's program.

C. T. Herbert, M.D., President,
Southeast Missouri Medical Association.
Paul Baldwin, M.D., Councilor,
Tenth Councilor District.

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COUNCIL ACCEPTANCE

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Pyribenzamine now has been formally accepted by the A.M.A. Council on Pharmacy and Chemistry. A report to the Council on anti-histaminic agents was written by S. M. Feinberg, M.D., in the November 23, 1946 issue of the J.A.M.A. Pyribenzamine was found to be highly effective, and produces relatively few side effects.

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9th ANNUAL

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*J.A.M.A. May 4, 1946

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Hot flushes, headaches, nervous tension, mental depression, sudden gain in weight, and insomnia . . . your doctor can usually relieve these common menopausal symptoms.

But there are other reasons, too, why you should consult your doctor as soon as you notice any signs of the menopause.

At this time, your body undergoes many changes. It's the time when you are most likely to have a rise in blood pressure or a tendency toward gastro-intestinal disturbances.

Also, it's important to be sure that irregular menstrual periods actually indicate the onset of the menopause rather than pregnancy, or the presence of cancer or some other disease.

SEE YOUR DOCTOR. He can help you avoid many physical and mental problems during the menopause. Equally important, his supervision and understanding counsel at this time is your best security for continued good health in the years to come.

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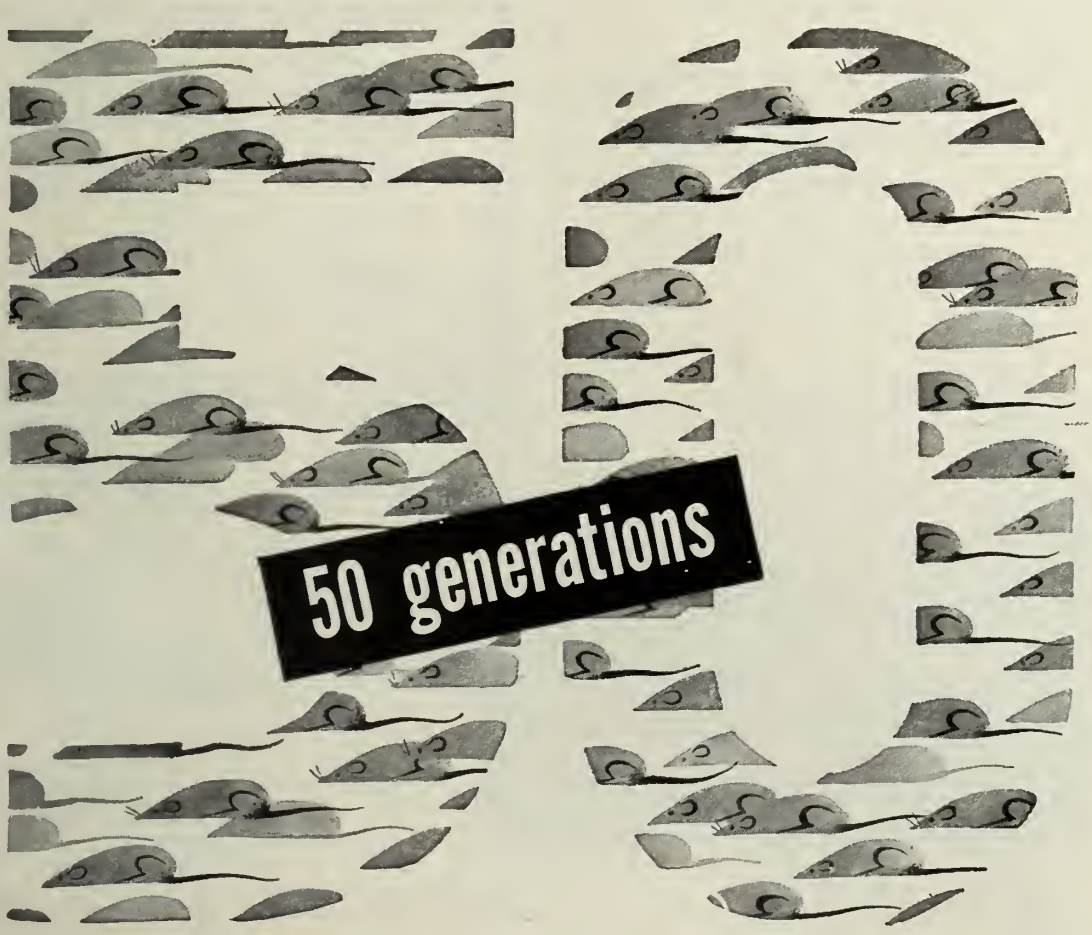
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1. National Research Council Bull. No. 109 (Nov.) 1943, p. 36.
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3. Statistical Bull. Metropolitan Life Ins. Co. **27**:6 (Dec.) 1946

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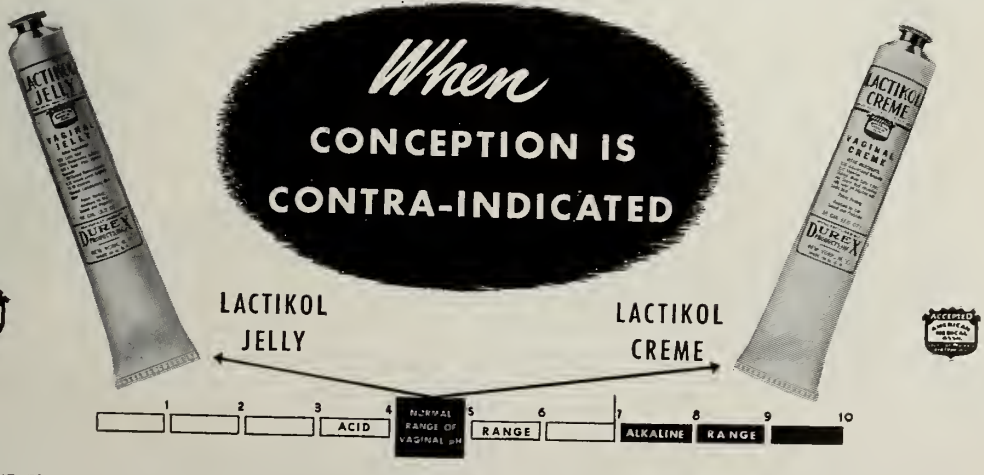
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INDEX TO ADVERTISERS

Abbott Laboratories 246
American College of Allergists 282
American Congress on Obstetrics and Gynecology 298
Ames Company 311
Ar-Ex Cosmetics, Inc. 308
Arlington Chemical Company 291
Ayerst, McKenna & Harrison 285
Bilhuber-Knoll Corporation 294
Borden Company 273
Burroughs Wellcome Company 249, 295
Camel Cigarettes 247
S. H. Camp & Company 299
Ciba Pharmaceutical Products, Inc. 296, 297
Ciba Pharmaceutical Products, Inc. ..... Insert
Cook County Graduate School of Medicine 310
Duncan Laboratories 252
Durex Products, Inc. 309
Eli Lilly & Company ..... Insert
J. H. Emerson & Co. 309
Faith Hospital 306
Glenwood Sanatorium 304
Gradwohl Laboratories 311
Hamilton-Schmidt Surgical Company 308
J. E. Hanger, Inc. 311
Harrower Laboratory 281
W. E. Isle Co. 309
Lov-e Brassiere Co. 307
M & R Dietetic Laboratories, Inc. 300
Major Clinic 245
Massachusetts Indemnity Insurance Company 310
Mead Johnson & Company 312
Medical Protective Company 254
Merck & Company, Inc. 274
Milwaukee Sanitarium 288
Mullen Ambulance Company 306
National Products Co. 244
National Pathological Laboratory 304
Norbury Sanatorium 306
North Shore Health Resort 298
Parke, Davis & Company 242, 243, 303
Philip Morris & Co. 255
Physicians Casualty Association 304
Mary E. Pogue School 306
Producers Creamery Company 251
Quincy X-Ray and Radium Laboratories 308
Ralph Sanitarium 287
Rare Chemicals, Inc. 301
Robinson Clinic 309
Schering Corporation 253
Julius Schmid, Inc. 302
G. D. Searle & Company 271
Smith Dorsey Company 277
Frederick Stearns & Company 279
Stokes Sanitarium 309
Upjohn Company 305
U. S. Brewers Foundation, Inc. 251
Wallace Sanitarium 308
Wander Company 250
White Laboratories, Inc. ..... Insert
Winthrop Chemical Co. 256
Worrell, Dorothy 309
Zemmer Company 308



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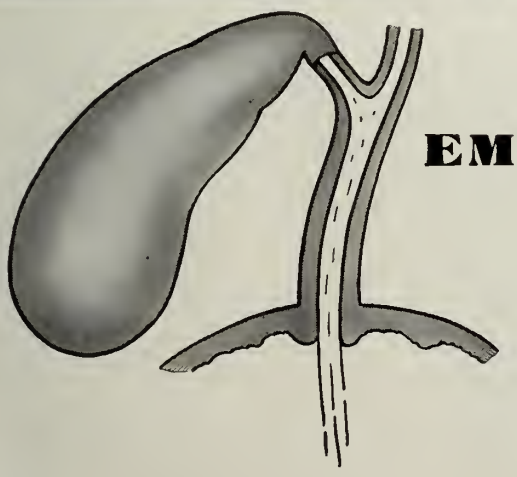
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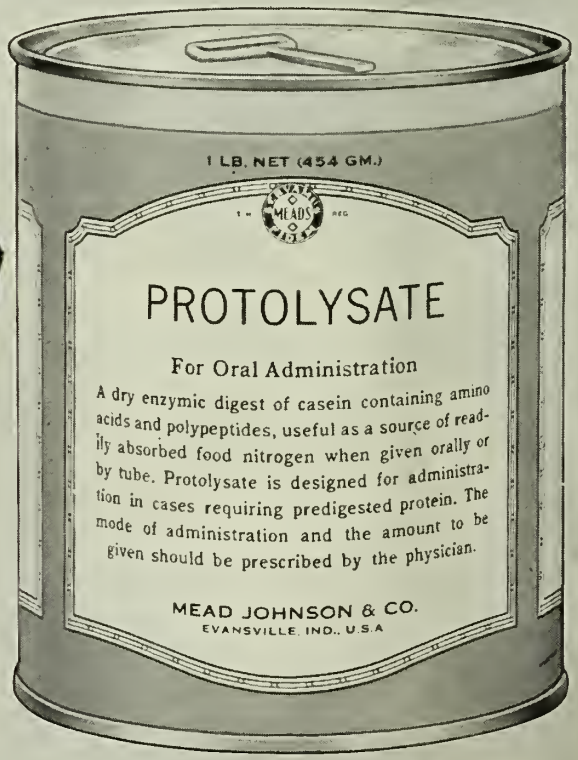
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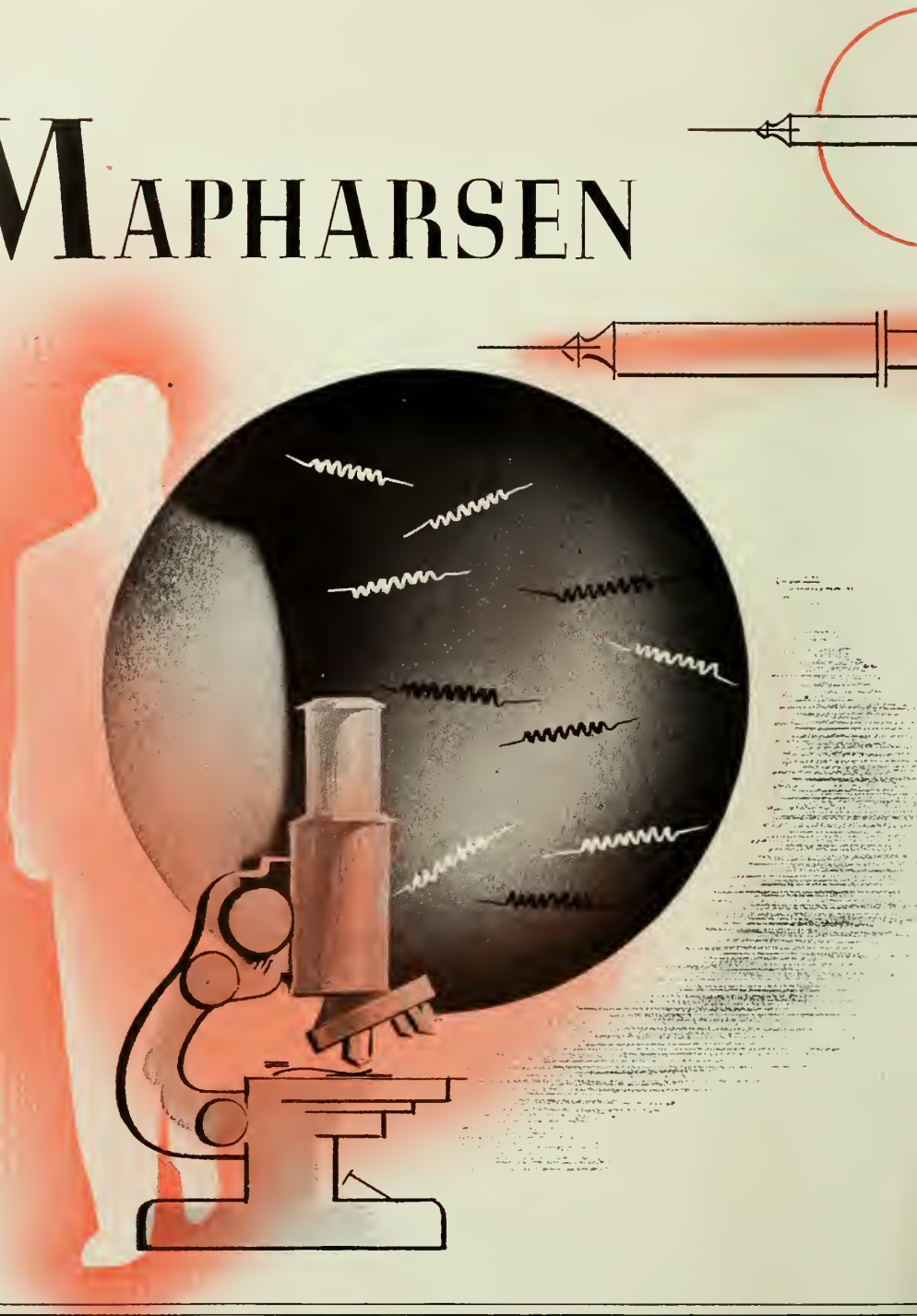
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(Contents Index Page 317)

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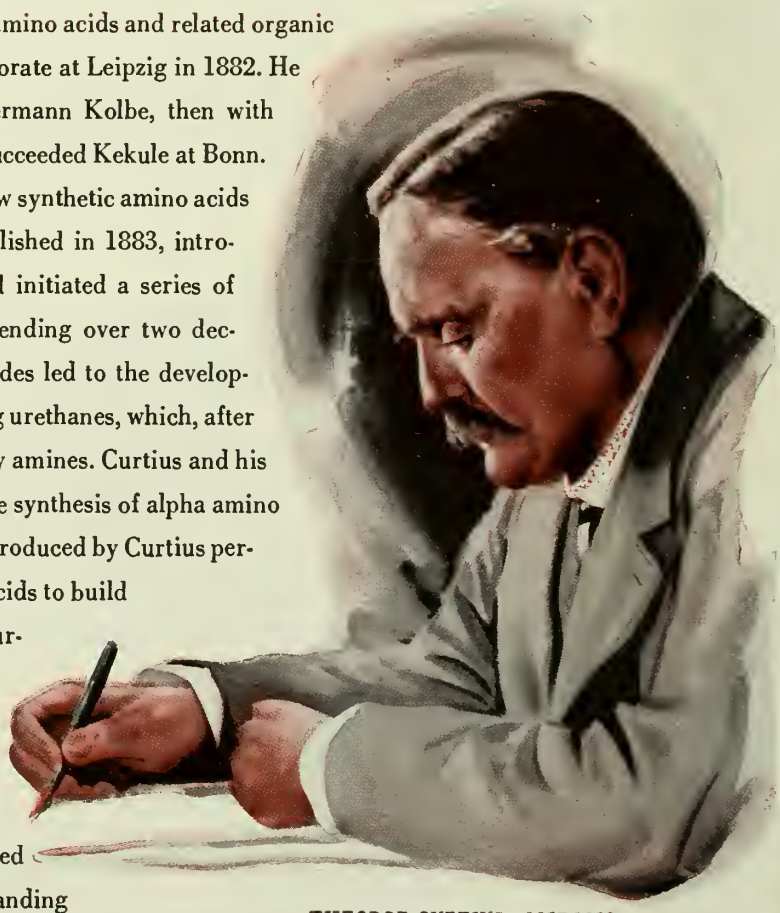
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CONTENTS

Sarcoma of the Soft Parts. Arthur Purdy Stout, M.D., New York 329

Tumor Seminar—Arthur Purdy Stout, M.D., New York—

Chronic Cystic Disease (Fibro-Adenomatosis With Extreme Hyperplasia) 334

Intraductal Carcinoma of Breast..... 336

Malignant Melanoma of Foot..... 336

Mixed Tumor of Sole of Foot..... 341

Granular Cell Myoblastoma of the Breast..... 342

A Case of Microaerophilic Hemolytic Streptococcus Infection of a Pilonidal Dimple. R. Hackmeyer, M.D., and First Lieutenant Earl L. Royer, M.C., A.U.S., St. Louis 344

Book Reviews 350, 359

Editorials—

National Conference of County Medical Society Officers 353

Olin West, M.D., Resigns as President-Elect of American Medical Association 353

Eighty-Ninth Annual Session 353

News Notes 353

Miscellany 355

Society Proceedings 356

Woman's Auxiliary to the Missouri State Medical Association 359

Entered as Second-Class Matter, February 18, 1925, at the Post Office at Fulton, Mo., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Business Office, 1201-5 Bluff St., Fulton, Mo., and 623 Missouri Building, St. Louis, Mo., Editorial Office, 623 Missouri Building, St. Louis, Mo. Return postage guaranteed. Printed by The Ovid Bell Press, Inc., Fulton, Mo.

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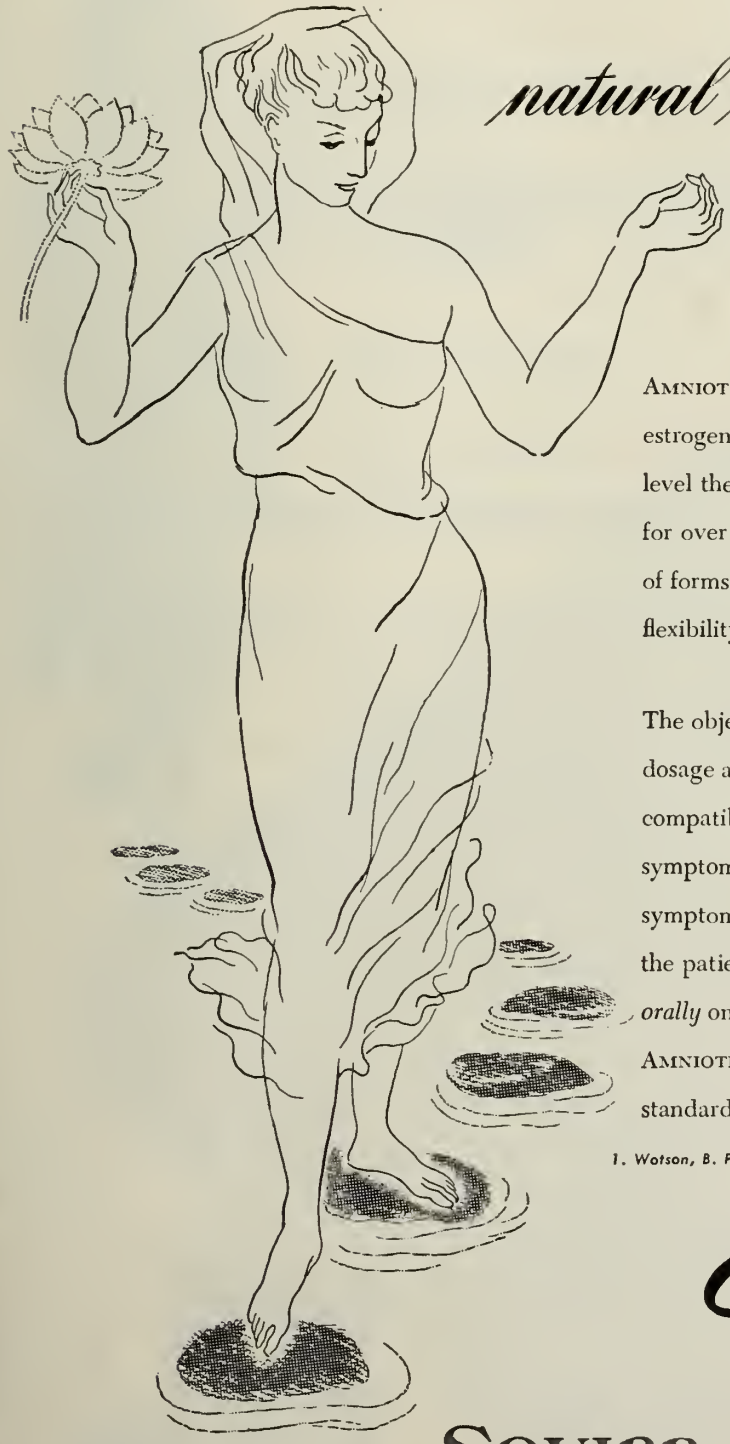
1. Editorial: J.Am.Dietet.A., 22:1063 (Dec.) 1946.
2. Ravdin, I.S.: Some Problems of Protein Deficiency, Connecticut M.J., 11:7 (Jan.) 1947.

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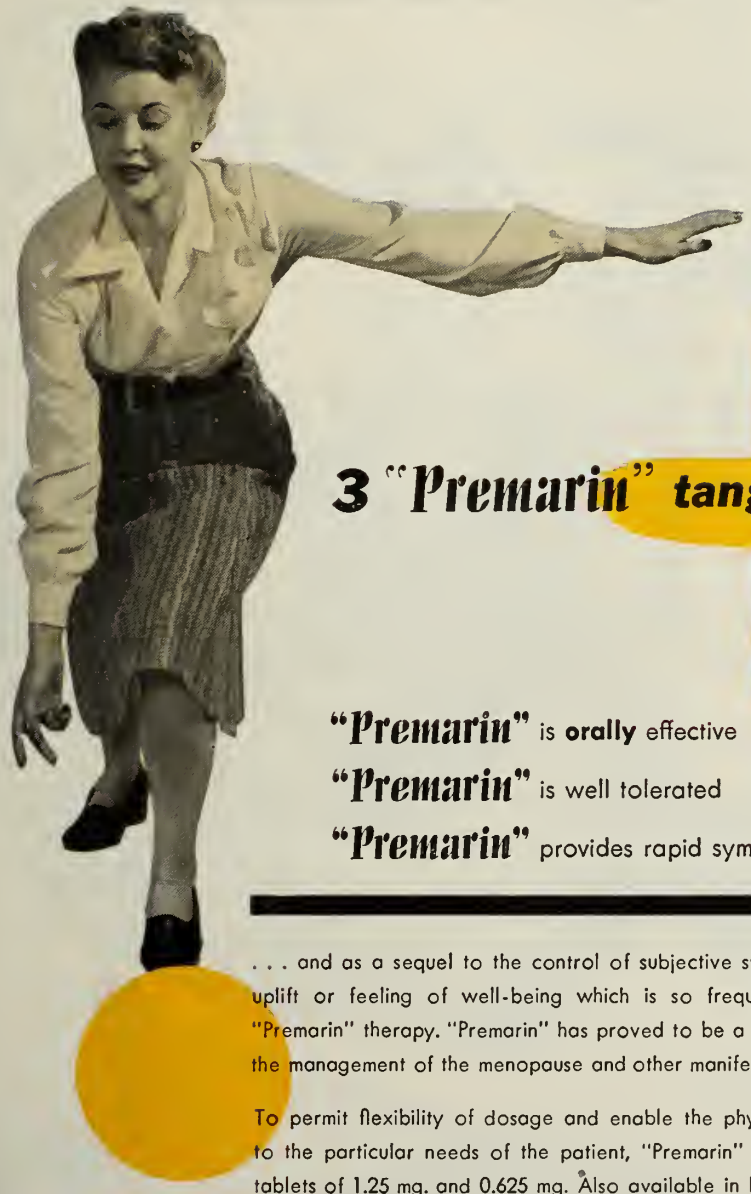


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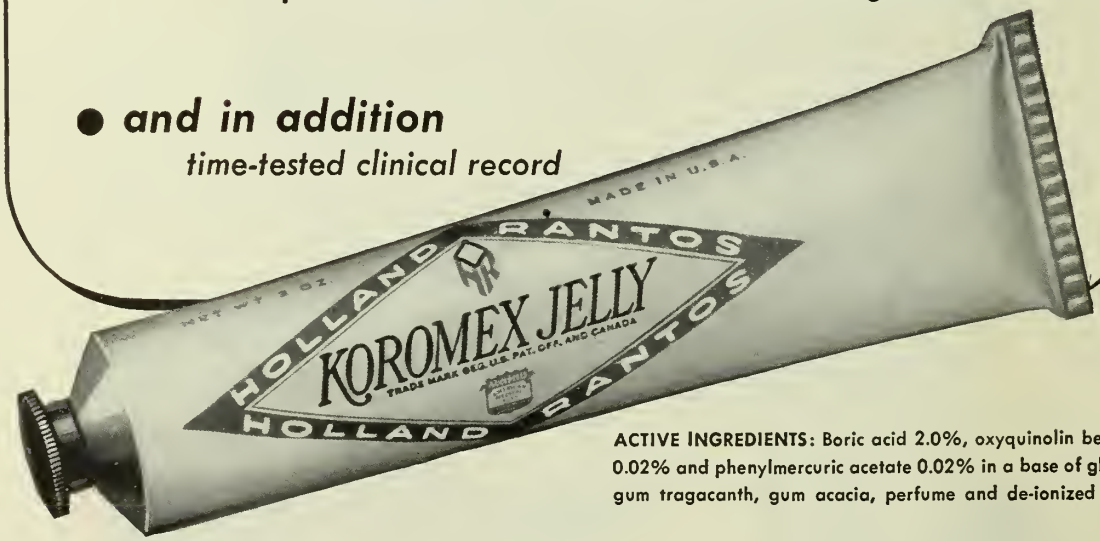
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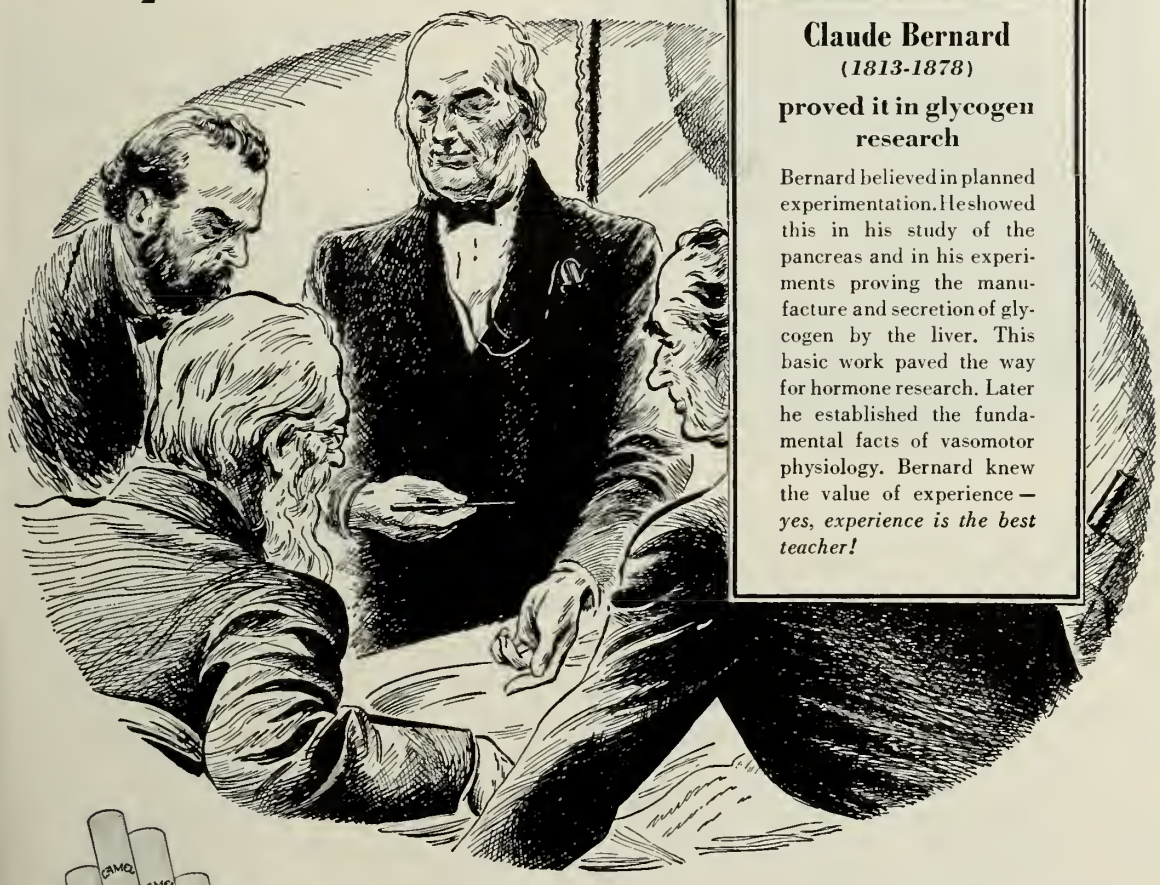
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SARCOMAS OF THE SOFT PARTS

ARTHUR PURDY STOUT, M.D.
NEW YORK

The sarcomas of the soft parts form a group which is little understood and often badly treated. There are two important reasons for this. In the first place they are uncommon tumors and therefore rare in the experience of most therapists and, in the second place, often they do not grow with easily recognized morphologic features as is the case with carcinomas and, therefore, have acquired a variety of names which are often misapplied. When I was a medical student in the first decade of this century, I was taught that there were two varieties of sarcoma, spindle-cell and round-cell, of which the latter was the more malignant. Since that time a great deal of information has accumulated about these tumors but it is still in a relatively chaotic state. It is the purpose of this communication to summarize the clinical and pathologic features of the principal varieties of these sarcomas of the soft parts and give some idea of their biological course and relative malignancy.

In this presentation the term sarcoma is intended to connote a malignant tumor of purely mesodermal origin, which tends to reproduce supportive, reticuloendothelial and lymphoblastic tissues. Soft parts is used arbitrarily to include the nonepithelial soft tissues of the extremities, trunk, neck and head including the retroperitoneal tissues and orbit. It excludes the bones, lymph nodes, all organs, the peripheral and central nervous system and all serous membranes except those in the extremities. This division is arbitrary and open to criticism for it is filled with incongruities. The only excuse for it is that any other selection is open to different but equally serious objections. The advantage is that it permits a synoptical visualization of a group of relatively obscure malignant neoplasms.

From the Surgical Pathology Laboratory, College of Physicians and Surgeons, Columbia University and the Department of Surgery, Presbyterian Hospital, New York, N. Y.
Read at the Tumor Seminar at the Ellis Fischel State Cancer Hospital, Columbia, Mo., October 26, 1946.

There can be little doubt but that the various sarcomas are growths which represent reproductions in caricature of the different derivatives of the primitive mesenchyme. The benign differentiated tumors of mesenchymal derivation, such as lipomas, angiomas and the rest, strongly suggest that this must be so and there is the added proof of the histopathology of the sarcomas and their characteristic behavior when explanted in vitro. Difficulties arise, however, in the recognition of some tumors because their reproductive efforts sometimes result in producing undifferentiated cells which are often spindle shaped and, all too frequently, considered primarily fibroblastic and called fibrosarcomas or neurogenic sarcomas. Specious confirmation of the use of this term comes from the fact that such cells can actually form connective tissue fibers. But there exists ample proof that many cells of mesodermal and even of neurectodermal origin are capable of assuming the guise and functions of the fibroblast (Murray and Stout, 1942). The synovial sarcoma (Haagensen and Stout: Murray, Stout and Pogogeff, 1944), the liposarcoma (Stout, 1944) and the malignant neurilemona are outstanding examples and, indeed, it is probable that the cells of any of the tumors of supportive tissues, as well as of the reticulum cell sarcomas, are capable of manufacturing reticulin. The true cellular origin of a tumor may not be possible to detect from a single biopsy and may even elude extended morphologic investigation. Tissue culture studies frequently will betray the true nature of such a tumor however since its cells, explanted in vitro, tend to grow in a fashion characteristic of its cellular origin.

Except for this tendency on the part of cells of different types to assume the guise and functions of fibroblasts, most of the sarcomas adhere to a pattern of growth characteristic of their cellular origin and recognizable as such. There is a small group of malignant sarcomas of the soft parts, however, which are truly mixed tumors in that they are made up of more or less poorly differentiated tis-

sues of quite different types. There are in our collection malignant tumors of the thigh and other muscles composed of atypical fibroblastic structures, vascular and reticular elements, together with lipoblastic, osteoblastic or chondroblastic tissues, forming amorphous conglomerates, the metastases of which are made up of one or more of these various tissues. Such tumors in the past generally have been recorded under long hyphenated labels naming all of their various component tissues, or with emphasis upon one of the tissues such as bone (Wilson). Thus they remain unexplained and lose their identity. To me they represent final proof of the retention of versatility into adult life of the primitive mesenchymal cell. For this reason I believe they should be grouped together under a common name. Since the term mixed tumor is identified with tumors of the mucous and salivary glands I propose to call them mesenchymomas. This term has already been used in connection with granulosa and theca cell tumors of the ovary for which Novak has proposed the term feminizing mesenchymoma of the ovary, but it has not become widely known and accepted and would seem to be better applied to this tumor group.

In table 1 is given a list of the fifteen names of the various sarcomas of the soft parts with which I am familiar. The small numbers indicate the relative rarity of many varieties which have been accumulated over a period of forty years not only from the Presbyterian Hospital but from many sources in this and other countries. It will only be possible to summarize briefly the most important features of each variety.

The *fibrosarcoma* is the most frequently observed of this group in all regions except the retroperitoneal tissues. The neoplasms are usually not very large, but are quite firm, and are characterized by infiltrative growth. Microscopically they are tumors made up of bundles of spindle-shaped cells accompanied by thick collagen and reticulin fibers in the well differentiated forms while in the more malignant tumors, the reticulin fibers are fewer and thinner, the cells more deeply stained with frequent mitoses and sometimes show variation in relative size. When they grow in the skin they are sometimes multinodular (dermatofibrosarcoma protuberans, Hoffmann). A considerable number develop in scars. When this occurs in the muscles of the abdominal wall, they have been called desmoid tumors. While only a small number of the fibrosarcomas metastasize (7.6 per cent), deaths caused by tumor growth (12.6 per cent) are slightly higher because primary excision is so often inadequate and repeated recurrences may eventually result in amputation and possibly loss of life. When a fibrosarcoma develops in the skin or is well differentiated, metastasis need not be expected. When differentiation is poorer, it must be dealt with on the basis of full malignancy. These tumors are radioresistant and cannot be destroyed except by doses producing necrosis of normal tissues.

In connection with the fibrosarcomas it seems necessary to mention the tumor which is frequently referred to in the United States as neurogenic sarcoma (Stewart and Copeland). This is a tumor which is supposed to be derived from the nerve sheath cells and presumably may be either a fibrosarcoma or a Schwannian cell tumor (malignant Schwannoma). I have been associated with Murray in her tissue culture researches into the nature of the benign nerve sheath tumors (Murray and Stout, 1940, 1942) and am convinced that the active cell in these tumors is neurectodermal in origin and that such Schwann cells can form reticulin. I feel convinced also that the malignant tumors of nerve sheaths which generally, although not always, develop in connection with multiple neurofibromatosis are also Schwannian and should be called malignant Schwannomas. Whether or not there is also a malignant nerve sheath tumor of mesodermal origin I am uncertain. Most of these malignant tumors kill by progressive extension along peripheral nerves to the spinal cord and only a few of them metastasize. A characteristic microscopic feature is a tendency for the spindle shaped tumor cell nuclei to be vaguely aligned in rows or "palisaded." Tissue cultures will differentiate these tumors from leiomyosarcomas which can also palisade their nuclei.

Table 1. *Primary Sarcomas of the Soft Parts*
(July, 1906-June, 1946, Inc.)

Tumor	Total Cases	Followed Cases	Recurrence	Metastasis	Died Tumor
Fibrosarcoma	184	120	66 (56)	9 (8)	15 (13)
Myxoma	40	18	10 (56)	0	1 (6)
Liposarcoma	73	35	23 (66)	12 (34)	13 (37)
Rhabdomyosarcoma	25	20	17 (85)	8 (40)	13 (65)
Malig. Granular Cell Myoblastoma	3	2	2 (100)	2 (100)	2 (100)
Leiomyosarcoma	13	10	9 (90)	3 (30)	8 (80)
Hemangioendothelioma	12*	7	6 (86)	5 (71)	3 (43)
Hemangiopericytoma	25*	12	5 (42)	2 (17)	3 (25)
Kaposi's Disease	15	6	4 (67)	2 (33)	3 (50)
Synovial Sarcoma	9	7	6 (86)	6 (86)	6 (86)
Lymphosarcoma (primary)	17	10	5 (50)	4 (40)	5 (50)
Reticulum Cell Sarcoma	9	6	3 (50)	3 (50)	4 (67)
Plasmocytoma	0				
Melanosarcoma	1	1	0	0	0
Mesenchymoma	6	5	2 (40)	3 (60)	3 (60)
Total	432	259	158 (61)	59 (22.8)	79 (30.5)

*Excluding benign forms in infants.
Figures in parentheses represent percentages of followed cases.

The *myxoma* is a tumor of stellate cells set in a matrix composed of a slimy gelatinous substance held together by delicate reticulin fibers forming a tangled meshwork. It thus resembles the myxoid type of liposarcoma but unlike that tumor has no lipoblasts and is not nearly as vascular. Like the fibrosarcoma it exhibits infiltrative growth and consequently is difficult to extirpate so that there is a high rate of recurrence. But so far as my experience and reading go, it is a tumor which does not metastasize nor is it apt to kill unless through the accident of origin it grows retroperitoneally or in some other situation where it is ineradicable. It may develop in either sex and at any age from the first year of life to extreme old age.

The second most frequent tumor form is the *liposarcoma*. This is a spectacular neoplasm because of the large size which it may attain. Neoplasms of from 10 to 50 pounds in weight have been recorded. The thigh and retroperitoneal regions are the most frequent sites involved; 64.4 per cent of all the liposarcomas in this series arose in those two sites (thigh 37 per cent and retroperitoneal 27.4 per cent). Histologically, the tumors fall into three groups. In the first they reproduce in caricature the appearance of ordinary embryonal fat with myxoid tissue, stellate lipoblasts and a rich supply of capillaries. If the differentiation is good, metastases do not occur but if poor with the formation of bizarre giant cells they may be found. In the second group the cells are rounded lipoblasts such as are found in embryonal brown fat while a third group has a mixture of the first two with or without areas resembling fibrosarcoma. Grossly, the first group is generally yellow because there is usually an admixture of some or many adult fat cells. The other two groups may be tinged yellow or orange but are predominantly pale gray. There may be more than one primary liposarcoma in different parts of the body. Like the fibrosarcoma this tumor infiltrates insidiously so that the recurrence rate after attempted excision is very high. It is seldom indeed that a retroperitoneal liposarcoma can be cured because of the impossibility of removing enough surrounding tissue. I have found that it is possible to control small superficial tumors not over 4 cm. in diameter by roentgentherapy but no one has succeeded in destroying the large tumors by this mode. The duration of growth may be years or growth may be very rapid but more commonly it is rather slow. If a cure is to be effected the treatment must be radical surgical removal.

The *rhabdomyosarcomas* or tumors of striated muscle-forming cells, in so far as the soft parts are concerned, generally develop in connection with striated muscles and as a class they are extremely malignant. The neoplasm may make its first appearance at any time from birth to old age, generally growing rapidly and forming a reddish protruding mass which eventually ulcerates. Histo-

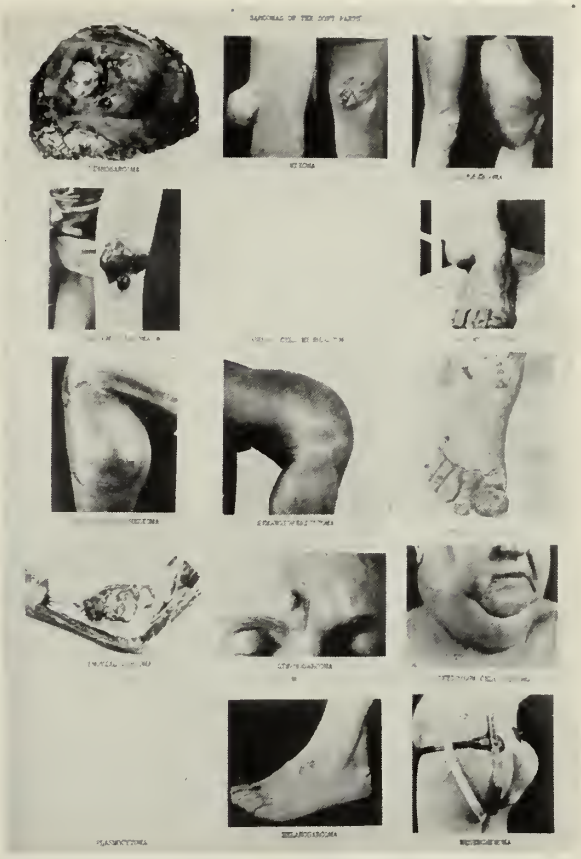


Fig. 1. Photographs of representative cases of thirteen of the fifteen varieties of soft part sarcoma. Photographs of malignant granular cell myoblastoma and of plasmocytoma do not exist.

logically, the tumor is characterized by the formation of rhabdomyoblasts which are either strap or ribbon shaped cells with nuclei in tandem or rounded multinucleate giant cells sometimes with marginally arranged vacuoles. The cytoplasm tends to be acidophilic and granular. Rarely one can detect longitudinally placed myofibrils or cross striations. The rare tumors that are well differentiated may be less malignant than the average. Diagnosis, however, is usually very difficult because these differentiating features ordinarily are obscured since much of the tumor may imitate a fibrosarcoma with bands of spindle-shaped cells and reticulin fibers. Metastasis and local infiltrative growth are common; consequently radical surgical treatment is imperative if more cases are to be saved since radiotherapy alone is ineffective.

Probably, although uncertainly, related to the rhabdomyosarcoma is the *granular cell myoblastoma* or myoblastic myoma as it was first called by Abrikossoff. These peculiar tumors generally form small firm nodules in the skin or deeper tissues of the soft parts. They are hard, circumscribed and clinically do not seem like malignant neoplasms because of slow growth and small size. Histologically, they are characterized by the formation of

cords of polygonal cells with a small nucleus and acidophilic granular cytoplasm and the great majority are indeed quite benign. However, rarely, a tumor may be found whose cells have larger nuclei and are arranged in lobules separated by capillaries giving the tumor the appearance of an endocrine organ. Of three tumors of the soft parts with this arrangement which have come to my attention, two have metastasized and killed. However, even an apparently simple granular cell myoblastoma can metastasize as was shown by a case originating in the bladder and studied by the Raviches and myself.

The *leiomyosarcomas*, or malignant smooth muscle tumors, are indeed rare in the soft parts and of thirteen of which we have records nine were retroperitoneal. For this reason the mortality rate of 80 per cent gives an exaggerated idea of their relative malignancy since only 30 per cent were known to have metastasized. They have the characteristics of leiomyosarcomas elsewhere and are usually not easy to recognize even with differential fiber stains because their cells easily lose the power to make myofibrils and one has to depend upon the elongated shape of the cell with its blunt ended nuclei. It should be pointed out that sometimes a well differentiated tumor with abundant myofibrils is capable of metastasizing.

Some authors refuse to attempt to differentiate between the malignant smooth and striated muscle cell tumors and consolidate them all under the name malignant myoma or myoblastoma. There is something to be said in favor of this plan because of the difficulty of separating all of them with assurance and accuracy. But there are also disadvantages. It has led to confusion with regard to the granular cell myoblastomas and it is worth distinguishing between striated and smooth muscle tumors, for the leiomyosarcomas as a group are less malignant than the rhabdomyosarcomas.

The malignant vascular tumors are poorly understood because there exist few exact descriptions of their morphology. This has resulted in the inclusion within their roster of richly vascularized tumors of other varieties. For me there are only three varieties of true angioblastic malignant tumors: *hemangioendothelioma, hemangiopericytoma* and *Kaposi's disease,* if indeed the latter is a neoplasm. All of these growths tend to form capillary tubes. In the hemangioendothelioma it is the capillary endothelial cells which dominate the picture chiefly by heaping up inside the reticulin sheath of the tumor capillary; for the hemangiopericytoma, it is Zimmermann's pericytes which proliferate in great numbers outside of the reticulin sheath of the capillary, while in Kaposi's disease the proliferation is of relatively normal appearing capillaries generally in conjunction with a fibrosarcoma-like tissue. Kaposi's disease generally can be recognized as a vascular growth because it forms multiple nodules in the skin but the other two more commonly arise in deeper tissues when they are malignant and often it is not possible clinically to realize that they are vascular neoplasms and the microscope is necessary to demonstrate their true nature. The most malignant of the three is the hemangioendothelioma with Kaposi's disease next and hemangiopericytoma only occasionally malignant because of metastasis or infiltrative growth.

Synovial Sarcoma. — Tumors developing from synovial tissues are exceedingly rare but most interesting. They are confined solely to the extremities and arise close to or actually involving synovial membranes of joints, tendon sheaths and bursae. The nodules are usually not very large and growth is quite slow but they are peculiarly fatal because of the frequency of metastases through the blood stream. The figures in the table do not give an accurate conception of malignancy for not one of our cases deserves to be regarded as a cure, although knowledge of recurrence, metastasis and death from tumor is lacking in one. Histologically, all of these tumors are composed of partly differentiated synovial cells which tend to form caricatures of joint spaces together with a

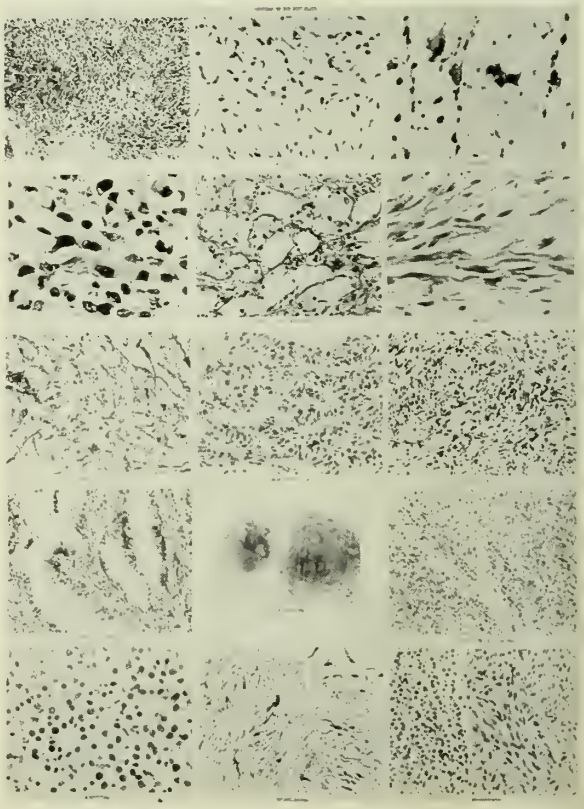


Fig. 2. Composite picture of important histopathologic features of the fifteen varieties of soft part sarcomas. Reading left to right: Top row—fibrosarcoma, myxoma, liposarcoma. Second row—rhabdomyosarcoma, granular cell myoblastoma, leiomyosarcoma. Third row — hemangioendothelioma, hemangiopericytoma, Kaposi's disease. Fourth row—synovial sarcoma, lymphosarcoma, reticulum cell sarcoma. Fifth row —plasmocytoma, melanosarcoma, mesothelioma.

fibrosarcoma-like tissue with many reticulin fibers. The synovial cells secrete hyaluronic acid, a sticky mucoid substance normally found in joints. Whenever the diagnosis is made treatment should be by amputation if possible since local excision and radiotherapy are ineffective.

The lymphoid and reticuloendothelial tumors form a most difficult group to elucidate for when one encounters them it is practically impossible to know, at least at first, whether the tumor is primary, metastatic or extension from bone marrow. It has seemed to me that it is possible to recognize three different varieties: *lymphosarcoma, reticulum cell sarcoma* and *plasmocytoma.* The cases recorded in the chart are those in which the tumor in the soft parts antedated by a considerable period of time any manifestations in other parts of the body but, of course, this does not necessarily prove they were primary. The lymphosarcomas primary in the soft parts commonly arise in the skin and can be divided conveniently into reticulum cell, lymphocytic cell and giant follicle tumors (Stout, 1942). As a class they are somewhat less fatal than lymphosarcomas arising in lymph nodes and form nodules which are either reddish or pallid and semitranslucent. It has seemed proper to separate from them the reticulum cell sarcomas which arise in the deeper tissues of the soft parts, especially striated muscles. Since lymphosarcomas apparently do not arise primarily in these deeper parts, one is forced to presume that these rare tumors must come from tissue histiocytes instead of the reticulum cells of lymphoid tissue. But as the tumors histologically look just the same it seems preferable to call them reticulum cell sarcomas. They are fully malignant and are preferably treated by radical surgery because reticulum cell tumors are not always radiosensitive. Plasmocytoma primary in the soft parts is unknown to me but examples are cited by Hellwig.

Melanosarcoma arising from mesodermal melanoblasts of the blue naevus is not a metastasizing tumor so far as my experience goes. It may grow to a considerable size and infiltrate but that is all. Montgomery agrees with this but Foot states that he has encountered metastasizing tumors arising from blue naevi. He has not published details of these cases.

The tumors which I propose to call *mesenchymomas* are composed of conglomerations of neoplastic tissues of various kinds including mesenchymal elements, i. e., myxoma-like tissue, atypical osteoid, bone and cartilage, embryonal fatty tissue, fibrosarcoma, reticulum cell sarcoma and any of the malignant vascular tumors already described. Not all of these are always present in every tumor and the grouping of the component parts is extremely variable and not necessarily the same in recurrences and metastases. The tumors are fully malignant, generally arise in the muscles of the extremities and metastasize through the blood stream.

This brief survey covers all of the sarcomas of the soft parts known to me. I do not believe it is complete for there remain in the collection of the Surgical Pathology Laboratory of Columbia University other malignant soft part tumors which are still undiagnosed and much study of the biological characteristics of these tumors by means of tissue culture will be required before all the variants are known. Nevertheless, such a review as this makes it abundantly clear that the soft part sarcomas are a group of malignant tumors which reproduce in caricature, but usually in such a fashion that they can be recognized, the embryonal or adult features of the various derivatives of the primitive mesenchyme.

Because of this ability to recognize the different tumors, it has been possible to learn something about their characteristics of growth and degree of malignancy so that one can formulate a plan of dealing with them.

In the first place, I am firmly convinced that with the possible exception of some skin tumors, and obvious lipomas, neoplasms of the soft parts should not be attacked without a preliminary biopsy so that the oncologist may know with what he is dealing. Blind attempts at local excision fortified by the naive and quite erroneous belief that simple excision of the gross palpable extent of a tumor will be sufficient to cure it, results in a lamentably high rate of recurrence and is almost certainly responsible in part for the high metastasis and death rate. A great responsibility rests upon the shoulders of the therapist whom the patient first consults for he has the best chance of obtaining a cure and if he fails, subsequent attempts, even though radical in the extreme, probably also will fail. It is not always necessary in an extremity to resort to amputation in order to be radical, if the surgeon is willing to sacrifice all of the apparently uninvolved tissues up to 2.5 or 3 cm. all around the gross neoplasm. When this is not possible in an extremity, then primary amputation is indicated. The types of sarcomas for which such treatment is certainly indicated are the poorly differentiated fibrosarcoma, rhabdomyosarcoma, synovial sarcoma, hemangioendothelioma, reticulum cell sarcoma, mesenchymoma, poorly differentiated liposarcoma, leiomyosarcoma and malignant neurilemoma in the absence of active multiple neurofibromatosis. Primary amputation should not be done in cases of skin fibrosarcoma, Kaposi's disease, melanosarcoma, lymphosarcoma and malignant neurilemoma in the presence of spreading plexiform neurofibromatosis. Generally it is unnecessary for the well differentiated liposarcoma and myxoma. Too little is known about the recognition of the malignant forms of the granular cell myoblastoma, hemangiopericytoma and plasmocytoma to warrant formulating a definite policy of treatment.

The accurate diagnosis of these tumors is so difficult that a needle or punch biopsy is inadequate and incisional biopsy is mandatory. This should be done through the smallest possible incision and with the exercise of the utmost care to avoid implantation of tumor cells in the wound tract. Armed with the information gained from a study of paraffin sections, the oncologist can formulate an intelligent plan of treatment.

Early accurate diagnosis by means of biopsy followed by sufficiently radical surgical treatment as soon as possible that aims to cure the disease and not just "shell out" a tumor mass is necessary if more cures of these malignant destructive neoplasms are to be achieved.

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TUMOR SEMINAR

CONDUCTED BY ARTHUR PURDY STOUT, M.D.
NEW YORK, N. Y.

CHRONIC CYSTIC DISEASE (FIBRO-ADENOMATOSIS WITH EXTREME HYPERPLASIA)

History (presented by Lauren V. Ackerman, M.D., Columbia).—Seventeen years previous to admission on September 28, 1942, this 39 year old female noted a mass in the left breast following trauma. This mass did not grow until one and a half years before admission, when it became painful and began to enlarge. During the last year, she had had two miscarriages. At the time of admission she though she might be pregnant. In the upper outer quadrant of the left breast, there was a 2 by 3 by 2 cm. firm, irregular mass which was not attached to the skin or surrounding tissues. No axillary lymph nodes were palpable. The mass was excised on October 6, 1942. This patient was well without evidence of disease in 1946.

Arthur Purdy Stout, M.D.: *Microscopic Description* (Fig. 1).—Microscopic examination shows an area of breast tissue in which there has been an enormous and varied hyperplasia. One can find multiple cysts lined with the large acidophilic cells in papillary formation known as apocrine cysts. There are dilated ducts with papillary proliferations supported by cores of vascular fibrous tissue; there are jumbled proliferations of acini and ductules embedded in a fibrous matrix known variously as adenosis or fibroadenosis and finally there are some ducts in which the lining cells are large and have heaped up in solid formations within the lumens unsupported by fibrous tissue, but these large cells have either foamy cytoplasms or else they are filled with blood pigment. Not one of the cells has changed its characteristics and become cancerous.

Comment.—This case is an excellent example of the difficulties presented by extreme hyperplasia in differentiating it from true carcinoma. There are two features which need attention. First there is the jumbled proliferation of acini and ductules generally referred to as adenosis or fibroadenosis. Since the acini and ductules often are lined by swollen cells which become apposed because the empty lumen is only a potential space thus causing them to simulate solid cords of cells and because these structures are generally embedded in a thickened fibrous stroma, the whole picture simulates the arrangement of an infiltrating carcinoma. Only careful observation of the individual cells will show that they are not cancer cells but simply hyperplastic duct and acinar epithelium. This is the decisive criterion.

The second feature demanding close attention is the elucidation of the intraductal proliferations. These may be papillary or solid. If the papillary

The Tumor Seminar conducted by Arthur Purdy Stout, M.D., Associate Professor of Surgery, Columbia University, and Surgical Pathologist to the Presbyterian Hospital, was presented at the Ellis Fischel State Cancer Hospital, Columbia, October 26, 1946, under the auspices of the St. Louis Pathological Society and sponsored by the Missouri Branch of the American Cancer Society.

proliferations are supported by fibrous vascular stalks one has an almost complete assurance that they are benign. If the duct is filled with unsupported cells, one must again inspect the individual cells with the greatest care to determine whether or not they show the hyperchromatic nucleus, large nucleolus, frequent mitoses and the other features of the cancer cell. The cells of a cancer while it is intraductal are almost always large, so that proliferations of cells of normal size may generally be dismissed as benign. But sometimes benign cells are also large, generally because of lipoid secretion or degeneration. In this case a number of swollen fat laden cells will be found in the ducts. In all cases, therefore, the decisive criterion is the individual cell. It requires a considerable amount of experience and very good preparations to make the diagnosis from quick frozen sections during operation. It may be of interest to describe the procedure at the Presbyterian Hospital in clinically doubtful cases. The nodule is exposed through a short incision and a small biopsy is taken. If a frozen section shows no suspicion of cancer, the whole nodule is then excised and again examined for evidences of cancer. If the first biopsy shows cancer, the radical operation is carried out. But if, at the first frozen section, it cannot be decided whether or not the tumor is cancer, the biopsy incision is closed without further operation at the time and the surgeon waits until a quick paraffin section permits determination of the presence or absence of cancer. One could, of course, do a radical operation on the mere suspicion of cancer but we try to avoid this mutilating procedure if it is not necessary. The reason for not removing the entire nodule is the desire to avoid cutting through a possible cancer field any more than is absolutely essential since it violates the cardinal principle of cancer surgery which strives whenever possible to keep the operative field always outside of the cancer area which includes the primary tumor, its regional lymphatics and the intervening lymphatic vessels. Justification for delay comes from a comparison of breast cancer cases treated by immediate primary radical mastectomy with those in which there has been a delay of from one to twelve days between biopsy and radical mastectomy. The five year cure rate is essentially the same which suggests that the procedure is not prejudicial to the patients' chances of cure.

It is of interest to determine to what extent women with cystic disease and epithelial hyperplasia are in danger of developing cancer of the breast. There are considerable difficulties in determining this because of differences in opinion as to the cancer of the breast development rate in the female population over 40. Figures vary from 0.42 per cent to 3.7 per cent. Studies of fibroadenomatosis cases with hyperplasia show a cancer development rate of from 3.2 per cent to 6.3 per cent according to different reports. These figures suggest that there may be a somewhat greater

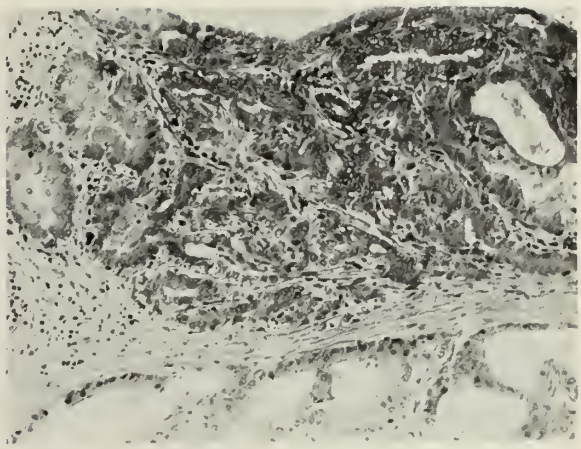


Fig. 1. Chronic Cystic Mastitis. Area showing adenosis.

chance for women with marked epithelial hyperplasia of the mammary gland to develop cancer but that there is not enough evidence to warrant prophylactic simple mastectomies except in rare instances. Specifically these are: (a) when the woman with fibroadenomatosis has a familial breast cancer history, (b) when there are multiple intraductal papillary tumors outside of the nipple zone, and (c) in cases with recurring formation of clinically suspicious nodules of marked hyperplasia.

DISCUSSION

SAMUEL H. GRAY, M.D., St. Louis: One of the difficult things in this type of case and others is the presence of small acini and frequently linear structures around the hyperplastic nodules, and the question comes up whether or not this represents invasion. It may be just a section from a tangential part of the tumor, and that is what frequently causes great confusion and worry to the pathologist.

DR. STOUT: This condition is what Dr. Ewing originally called fibrous adenosis, and Dawson of Edinburgh called adenosis. I think it is a well recognized feature of a phase of cystic disease and I think you have to examine and appraise the individual cells to see whether or not they are cancer cells. I think one must have a background of experience in order to do that with any assurance when one is making a diagnosis from frozen sections. But does it bother you in frozen sections?

DR. GRAY: No, I presented this case to a whole group and the ultimate argument was whether it represented an early carcinoma. But I have seen it called cancer many times.

DR. STOUT: Yes, a great many of the slides that are sent to me for opinion have to do with just this type of lesion, but I feel confident that it can be distinguished from carcinoma. If one appraises whether the cells are or are not cancer cells, whether they are actually infiltrating or are distorted with fibrosis around them, and whether contraction has produced that distortion, one will rarely have difficulty in making a correct diagnosis.

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INTRADUCTAL CARCINOMA OF BREAST

History (presented by Lauren V. Ackerman, M.D., Columbia).—The patient, a 66 year old female, noted two months before admission on July 14, 1944, that the right nipple was retracted and that there was a lump in the right axilla. She was given some roentgen therapy and then referred to this hospital. On examination, there was a slight erythema of the skin over the right breast, a poorly defined mass was felt beneath the retracted nipple and there was a 2 cm. node in the right axilla. This breast was removed on August 22, 1944, and carcinoma was found which also involved four out of seventeen regional nodes. She had no complaints until she was seen in the clinic on March 8, 1946, at which time there was a poorly defined area in the subareolar portion of the left breast. On March 14, 1946, she had an excision of this area. This patient had a radical mastectomy on March 19, 1946. Twenty-four axillary lymph nodes were negative.

Arthur Purdy Stout, M.D.: *Microscopic Description.*—The section shows a portion of the mammary gland very largely occupied by a carcinoma. The cells are large and fill ducts. Most of the ducts are solidly plugged with rare central necrosis and with very few rosettes. There is no fibrous tissue among the cells. In a few areas cords of tumor cells appear outside in the stroma.

Comment.—This is beyond question a carcinoma. Since most of cancer is intraductal, it should be called an intraductal carcinoma. My arbitrary criterion for deciding whether or not to call a carcinoma by this name is based upon whether more than half of the tumor lies inside of ducts. If less than half of the ducts are filled, the word intraductal is not included in the diagnosis. There are two histologic criteria which help one to decide whether an intraductal tumor is benign or malignant. If the tumor cells are supported inside the duct by fibrous and vascular tissue, it is almost certainly a benign tumor. If in addition the cells resemble the normal lining cells of ducts, the tumor is certainly not a cancer. In the breast, so far as my experience goes, cancer cells are always anaplastic with hyperchromatic nuclei and nucleoli. If one has a well fixed and stained section to study, there is rarely any real difficulty in the diagnosis of epithelial neoplasms.

In experience at the Presbyterian Hospital bilateral carcinoma of the breast is not necessarily fatal whether the tumors are present simultaneously or occur one after the other. We have several cases of ten year cancer-free survival. It is always of interest in these bilateral cases to speculate whether the second tumor is independent or an extension or metastasis from the first. It is rarely possible to be certain. In a case like this when the bulk of the second tumor is intraductal, it suggests that the tumor is probably a new independent one for it seems unlikely that an extension or metastasis would grow chiefly in ducts.

In regard to some of the subvarieties of intraductal cancer, the names used include comedone cancer, intraductal carcinoma with rosettes which is called by the French "epitheliome en rognon," and papillary carcinoma. So far as the clinical results are concerned they all have a better prognosis than the average and there is no difference between them. For this reason we classify all of them by the single term intraductal carcinoma.

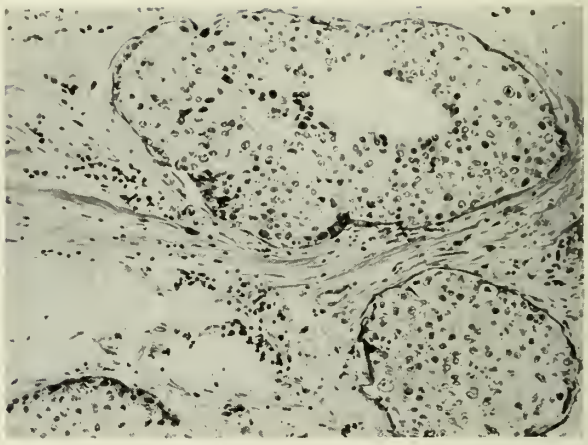


Fig. 1. Intraductal carcinoma of breast.

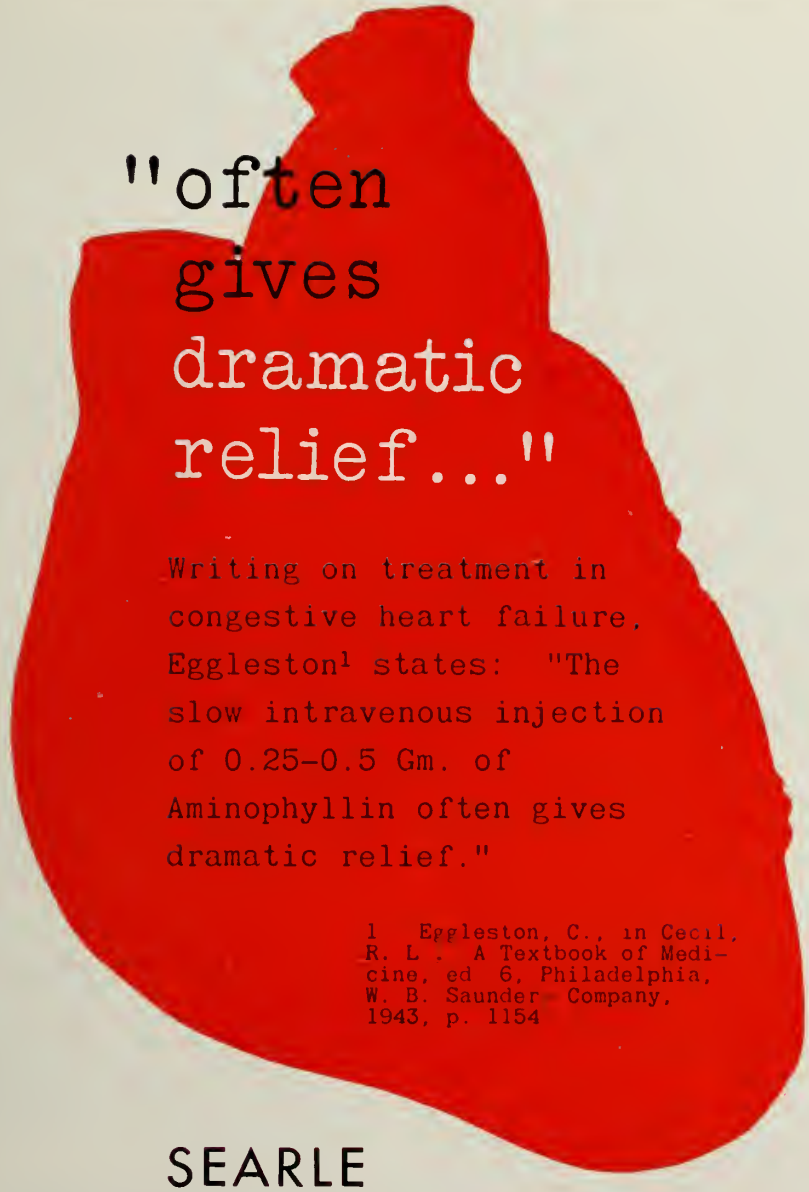
DISCUSSION

Dr. Stout: In frozen sections, this type of cancer may be somewhat difficult to recognize because noncancerous epithelial cells may simulate the appearance of cancer cells if swollen with lipoid or degenerated material within them. I take it that this case did not present any difficulty in diagnosis for you. It is a classical example of intraductal carcinoma.

MALIGNANT MELANOMA OF FOOT

History (presented by Lauren V. Ackerman, M.D., Columbia).—The patient was a 24 year old male who entered the hospital in December, 1941. A slowly growing, slightly painful nodule had been present on the plantar surface of the left foot for 2.5 years, and ulceration of the lesion had lately occurred. On examination, the tumor showed superficial ulceration, was firm, fixed to the deeper structures, and measured 5 by 4 by 2 cm. It was non-pigmented. There was no regional lymphadenopathy. On December 30, 1941, the patient had an amputation at the junction of the middle and upper third of the left leg. This was followed by radical inguinal dissection on June 2, 1942. The regional lymph nodes were negative. The patient was without symptoms until January, 1944, when he complained of headaches. On examination, he had numerous skin nodules. He died in February, 1946, of dissemination of the disease, approximately 5 years after his primary treatment.

Arthur Purdy Stout: *Microscopic Description.*—The primary lesion in the foot is a tumor composed very largely of spindle-shaped cells without accompanying connective tissue fibers arranged in cords. It touches the deepest layer of the corium and infiltrates into and between the fibrous sheets of the plantar fascia. The individual cells are not particularly hyperchromatic, they contain no melanin and few mitoses. The tumor betrays its malignancy, however, by the type of infiltration and by direct invasion of a venule which is present



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1 Eggleston, C., in Cecil, R. L. A Textbook of Medicine, ed 6, Philadelphia, W. B. Saunders Company, 1943, p. 1154

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in my section. The metastatic lesion is quite different. It is made up of solidly packed rounded cells which have large nuclei and scanty cytoplasm. They are hyperchromatic, anaplastic with many mitoses. They show a marked tendency to necrosis and no melanin. The cells are vaguely supported by slender strands of vascular connective tissue. They have invaded the tissues outside of the nodule.

Comment.—It must first be decided in this case whether or not one is dealing with two different tumors or metastases from the same. The great variation in morphology might tempt one to believe that they are different. But two different tumors, while not uncommon in middle and old age, are rare in youth and, further, the distribution of the second group of tumors is that of a metastatic rather than a primary lesion. If the ensemble is interpreted as a single tumor, there is only one neoplasm which will account for its morphologic variations, i.e., the malignant melanoma. This can grow in cords of spindle-shaped cells and can also appear as solid masses of rounded anaplastic cells. It can occur without demonstrated melanin. A Dopa reaction is only important if it is positive, therefore the reported negative Dopa reaction may be disregarded. Although the demonstration slide does not show skin involvement, the history states that there was skin ulceration so it can be assumed that the growth started in the skin. Finally, the lag period of five years before the appearance of metastases is quite characteristic of the malignant melanoma. It is surprising that no inguinal metastases were found but with the melanoma anything may and does happen.

In my experience, the foot and the head are the commonest sites for the development of malignant melanomas of the skin; 40 per cent of them are found almost equally divided between these two regions. The rest are widely scattered with the arm, abdomen and neck next in frequency. The majority (65.4 per cent) start in preexisting moles and in half of our cases so arising there was a history of trauma to the mole. I therefore strongly deprecate any treatment for moles which irritates or injures them without complete removal. Melanomas generally kill by metastasis both through the blood and lymphatic systems and the number of cured cases is pitifully small. There are three varieties which are less malignant than the rest: (a) those which develop before the age of puberty; (b) the subungual melanomas; and (c) those which show a slow intramucosal spread, the so-called malignant freckle. Treatment should be by wide and generous local excision with regional node removal. If lymph node metastases are present, the chances of cure are minimal or absent except when the patient is below the age of puberty. One curious fact is the possibility of metastases from an occult unrecognized primary source. This occurred in one tenth of our cases. Another observation is the sudden appearance of a metastases producing bizarre symptoms while the primary focus went unsuspected by the patient. Examples are the sudden occurrence of intussusception from submucosal metastasis in the intestine, bronchiectasis from a mucosal metastasis in a large bronchus, and central nervous system symptoms from a metastasis in brain or cord.

DISCUSSION

Samuel H. Gray, M.D., St. Louis: What percentage of the non-pigmented melanomas show the spindle type of cell?

Dr. Stout: I do not have definite figures on that. I would say that it is small.

Dr. Gray: I think most men would call this tumor neurosarcoma.

Dr. Stout: Not after that metastasis. I saw this tumor years ago. Did I not make a diagnosis of malignant melanoma at that time, Dr. Ackerman?

Dr. Ackerman: Yes, you did.

S. M. Rabson, M.D., Ft. Wayne, Ind.: First, would you be kind enough to discuss the relationship of junction type nevi to melanoma? Second, do you believe that melanomas can arise in other than the dermal tissues? Dr. Ewing suggested that lymph nodes might be a starting point for melanomas and referred me to some work Stewart had written. The only thing I could find was a reference in a speech Stewart gave in Canada.

Dr. Stout: By junction nevi you mean those moles in which mole cells are up against the epidermis or even seemingly within the epidermis; and the question is, is there a greater danger here of malignant melanoma developing than where the mole cells are deeper and not in contact with the epidermis? That is a very interesting question and I think it is extremely difficult to evaluate. I think there is a question as to whether that type of mole is more apt to develop melanoma than the other type. Maybe they do. I have never investigated our cases from that point of view. All I am willing to say now is that I do not think that malignant melanomas develop exclusively from that type of mole. They can develop from other types but what the percentage is, I do not know. As to the site of origin of malignant melanomas, of course, the literature contains reports of primary malignant melanoma up and down the gastrointestinal tract, in the gallbladder and in other locations. I have always maintained a degree of skepticism in crediting those reports because of the fact which I mentioned, that in 10 per cent of malignant melanomas no primary focus was discovered. Now you

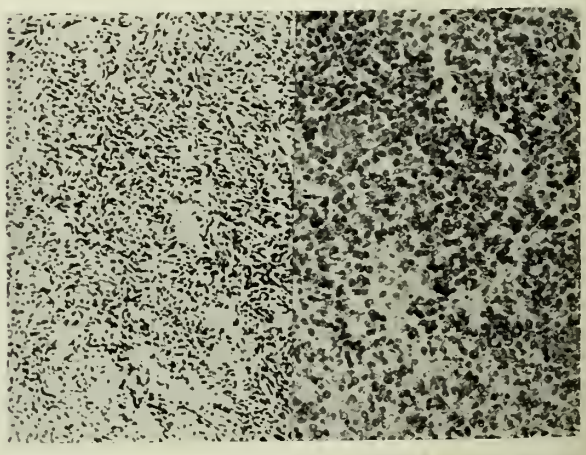
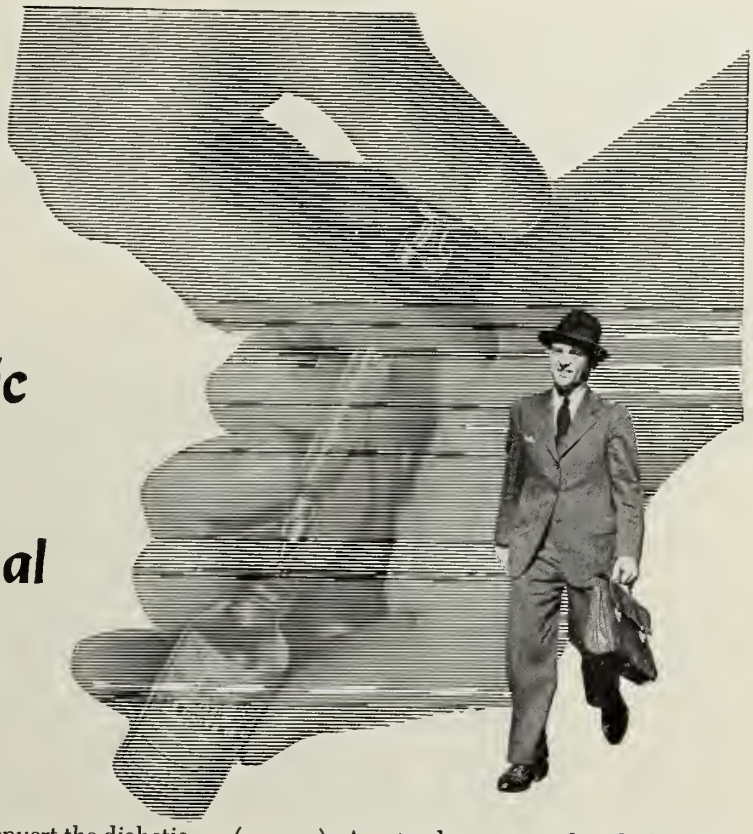


Fig. 1. Malignant melanoma. At the left the primary tumor showing spindle cells and at the right a high magnification of the metastasis.



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1. Bauman, L.: Bull. New Eng. M. Center 5:17 (Feb.) 1943.

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want me to say, do melanoblasts, capable of making malignant melanomas, appear in lymph nodes primarily or elsewhere. I am also familiar with Dr. Ewing's and Dr. Stewart's public statement about the finding of mole cells in a lymph node. I have never found them in a lymph node. I found phagocytes containing melanin but I have never recognized the primary differentiation of mole cells in a lymph node. I will say that it is possible to have them (melanoblasts) in some of the neurofibromas. I talked about that with Masson this summer and he believes that, too.

DR. ACKERMAN: What about the oral cavity as the primary source?

DR. STOUT: The sites that I recognize as definitely giving rise to malignant melanoma are those of ectodermal origin, namely: the skin, the anterior nares, the anterior two thirds of the oral cavity and the anal canal. I am sure we have all seen malignan melanomas definitely developing there. The so-called rectal malignant melanomas do not actually originate in rectal mucosa but from the squamous epithelium at its junction with glandular mucosa. Probably because of the sphincter muscles they grow cephalad into the ampulla where the bulk of the tumor is found.

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MIXED TUMOR OF SOLE OF FOOT

History (presented by Lauren V. Ackerman, M.D., Columbia).—The patient, a 59 year old male, was admitted to the hospital on October 26, 1944, approximately eighteen months after noting a callus on the plantar surface of the left foot. It was excised elsewhere on July 29, 1944, but the incision would not heal and he entered the Ellis Fischel Hospital with a swollen, tender foot. Regional nodes were slightly enlarged. The excised specimen was sent for. It measured 7.5 by 5.5 by 2.5 cm. Just beneath the level of the skin was a fairly well delineated, slightly cystic tumor measuring 2 cm. in diameter. Grossly, the excision appeared to be complete. This patient has been well without evidence of recurrence for somewhat over two years.

ARTHUR PURDY STOUT: *Microscopic Description.*—The sections show portions of a large tumor situated in the corium and extending deeply beneath it into the subcutaneous fat. It is composed of a most confusing variety of structures which vary all the way from well developed tubes lined by cuboidal epithelial cells, through solid masses of undifferentiated cells to myxoid areas in which rounded and stellate cells occur as widely separated units or slender strands only one cell thick. Intermingled with the tumor there are scattered groups of sweat glands, some of which are somewhat hyperplastic. It is very difficult sometimes to tell whether or not some of the hyperplastic tubes are part of the tumor or simply buried within it.

Comment.—When first observed this tumor gives one the impression of being a carcinoma of some peculiar type with areas of anaplasia. But on more attentive study one is struck by the resemblance of this confused mixture to a mixed tumor of salivary glands and this conception is further strengthened by the discovery of one small area of true fibrocartilage mixed with cells of an epithelial

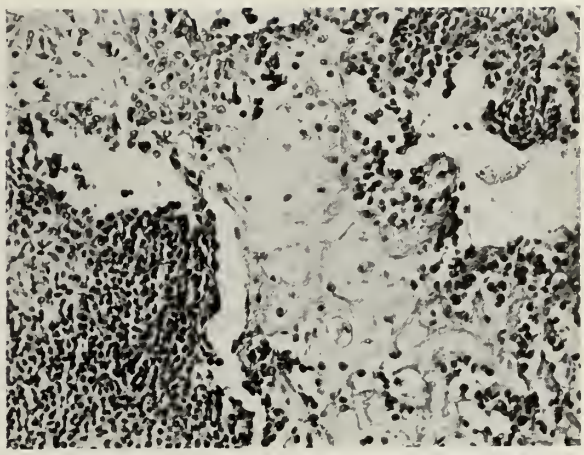


Fig. 1. Mixed tumor of sole of foot. An area showing relationship of undifferentiated epithelial cells to cartilage.

aspect. The diagnosis seems quite definite as does the origin from sweat glands.

Mixed tumors far removed from mucous and salivary glands are not unknown although rare. Simard (1938) reported one very much like this case except that there was more cartilage in it in the hypothenar eminence of a 76 year old woman and gave references to seven other cases—three in the lower extremity and four in the upper. In the collection of the surgical pathologic laboratory of Columbia University there are recorded sixteen cases from the skin of the head and neck, and in addition to these one case from the back, one from the palm of the hand, and one each from the gluteal region, the leg and the sole of the foot. Simard felt that the mixed tumor arose from or in connection with the sweat glands and with this Gates, Warren and Warvi are in hesitant agreement. They list five tumors in which cartilage or osteoid tissue and bone or all three made up an important part of the tumor, one from the hand and four from the head. I have never seen bone or osteoid in a mixed tumor. Everyone agrees that the mixed tumors of the skin are benign tumors which do not metastasize.

It may be remarked in passing that even if one should make a diagnosis of carcinoma of sweat glands in this case, the prognosis would still be favorable because of the extreme infrequence with which such tumors metastasize. Gates, Warren and Warvi have never seen metastasis and list only four cases from the literature. When I last reported our sweat gland carcinomas in 1944, there were three cases with metastases. We now have a total of four cases.

DISCUSSION

DR. STOUT: I would be interested to know if anybody agrees with me in that diagnosis?

SAMUEL H. GRAY, M.D., St. Louis: Do the invasive characteristics of this tumor suggest malignancy?

DR. STOUT: I would say decidedly not. In the first place, I think that all skin tumors are, to a moderate degree, invasive. I never worry about invasion in a

skin tumor. Were you sure that tumor had invaded the blood vessels?

Dr. Gray: We thought it had.

Dr. Stout: All I can say is that so far as I know there are no reports of malignant mixed tumors in the extremities or at a distance from the salivary glands or the oral cavity.

S. M. Rabson, M.D., Ft. Wayne: I think the reason these tumors are so rare is because they are not recognized. I have seen only a single case in which the tumor arose on an extremity. Dr. Jessup reported it. I think their rarity is probably such that many of us will never see another one for many years.

Dr. Stout: I agree, for one does not have mixed tumor in mind when one looks at the sole of the foot and palm of the hand. It just would never occur to one to consider a mixed tumor in this location.

Dr. Ackerman: When I saw this tumor first, I sold Dr. Stout the diagnosis of sweat gland carcinoma. I had been impressed by a report of Fred Stewart's in which he had described a tumor in the same area as sweat gland carcinoma which was associated with cartilage. Where do you think the cartilage is coming from?

Dr. Stout: Of course, that throws open the question of the etiology of mixed tumors. I think it was Masson who suggested that cartilage was simply the result of metaplasia. Certainly that is an easy way out to explain these mixed tumors. We have seen three metastasizing tumors arising from sweat glands and Dr. Severance has one. But I think that Gates and Warren are right in thinking that the vast majority of sweat gland tumors, no matter how much they look like carcinomas, behave like benign growths and do not metastasize.

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GRANULAR CELL MYOBLASTOMA OF THE BREAST

History (presented by Arthur Purdy Stout, M.D., New York City).—The patient, a female of 74, was referred to the Memorial Hospital for treatment in August 1930. Five years previously she had noted a painless, slowly growing, small lump in the inner portion of the right breast. Examination revealed a large tumor in the upper inner quadrant of the breast, measuring 9 cm. in diameter and elevated 4 cm. above the skin surface. Overlying skin was shiny and reddened. The mass was slightly movable over the underlying chest wall. The nipple was not retracted and there was no regional lymphadenopathy. Because the patient was in poor general condition, interstitial radiation was given, but the tumor, because of persistence, was resected in June 1931. It appeared encapsulated, measured 6 by 4 by 6 cm. and on section, was soft, reddish and granular in appearance.

Arthur Purdy Stout, M.D.: *Microscopic Description.*—The tumor is made up of large cells with granular acidophilic cytoplasm which are packed together in solid masses without connective tissue fibers between the individual cells. No intracellular fibrils or cross striations are found and there is nothing to suggest that the cells are epithelial. The tumor margin is sharply defined against the adjacent mammary tissue but there is no capsule. (Case 4 from Haagensen and Stout.)

Comment.—This case is one of five similar tumors in the mammary gland which we have studied in the Laboratory of Surgical Pathology at Columbia University. They can exactly simulate the clinical features of mammary cancer nor is it possible to distinguish them from cancer on gross examination. The histopathology, however, is so striking that one could hardly confuse it with carcinoma. It is possible on low power inspection to mistake it for xanthoma, but high power shows that the apparent vacuoles are granules and a fat stain will show the absence of lipoid.

These tumors are generally benign but not invariably. I have had an opportunity to study four of them which have metastasized. One arising in the urinary bladder with widespread metastases has been reported in collaboration with the Raviches. The others arose in the orbit, the leg and the buttock respectively and in each case the metastases have been proved by section. It is not yet surely possible to distinguish the benign from the malignant variety although most of the malignant tumors have had a kind of lobulated or organoid arrangement of their cells.

The tumor is most commonly found in the tongue muscle but it may be found in many other areas beside the breast where no striated muscle is known such as for example the gums, the external auditory canal, the vocal cords and the skin. When the tumor develops immediately beneath a squamous mucosa or the epidermis, it sometimes excites a tumor-like proliferation of the squamous epithelium downward into the corium with the formation of pearls. This can be mistaken for squamous cell epithelioma with serious results if treated as a mucosal cancer. Information available about radiosensitivity is conflicting. A tongue case treated with radium needles under the mistaken impression it was an epithelioma was not destroyed although necrosis was produced in the tongue tissues. On the other hand, metastases in the neck and cheek from a primary growth of the orbit

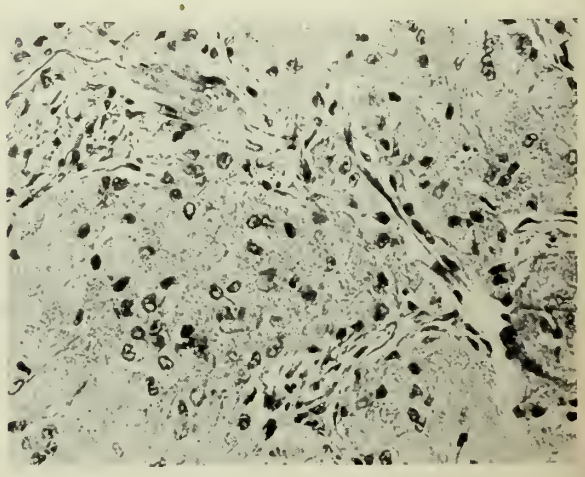


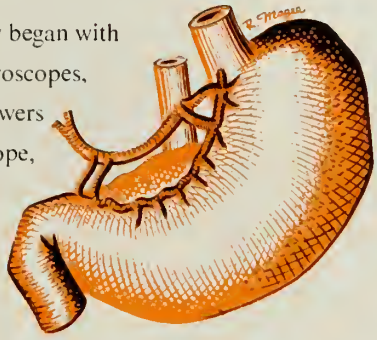
Fig. 1. Granular cell myoblastoma of breast.

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receded readily with roentgen ray effecting an excellent palliative result. The great majority of the neoplasms have been treated successfully by excision.

The origin of these tumors is still in doubt. It is generally supposed that they are a highly specialized form of myoblast. If so, it is of considerable interest that they do not produce definite cross striations and longitudinal fibers either in vivo or in vitro. There is room for further investigation in this direction.

DISCUSSION

Dr. Stout: I think that this neoplasm is worth distinguishing as a separate tumor type, whatever its origin may be, because of its very striking characteristics.

Dr. Ackerman: In the malignant case which we had here, definite cross striations were present in one of the cells. Is there any difference in granular cell tumors of the tongue and those seen elsewhere?

Dr. Stout: Some of the tumors in the tongue have elongated cells with granulations in them which seem to lie in apposition with the striated muscle cells in the tongue. Abrikosoff, in his original description, thought that these were myoblastic tumors because he said he could see granules in one end of the cell and striated muscle cytoplasm in the other. That has been questioned since, and I certainly question it because it is so very easy to be deceived into thinking that you are looking at a continuous cell, whereas, actually you are looking at cells which have been cut tangentially and which are lying in apposition. In the cases which we have seen, a few of them have been of that variety which could suggest a degenerative change, but the majority have looked more or less like this one in which it did not seem possible to think of it as a degenerative phenomenon rather than a neoplasm.

Betty Ben Geren, M.D., St. Louis: I wonder if this type of tumor may be explained on the centriole origin of myoblasts as described by Wolbach.

Dr. Stout: I read Wolbach's two articles with great interest. I think it is possible. I do not feel entirely convinced, however, because in ordinary histology and in the development of striated muscle, as far as I know, you do not find exact counterparts of these so-called granular myoblasts, and I would think that if these were definitely myoblastic cells, they would more often show definite recognizable cross striations. Do you think that the cross striations in your case are unequivocally cross striations, Dr. Ackerman?

Dr. Ackerman: I realize that that is the key point. The photomicrograph in my recent article depicts cross striations clearly.

Dr. Stout: I also have been able to find cells in which the granules were aligned. I certainly am astounded at the various places at which these tumors turn up. I only mentioned some of the places where normally no striated muscles are found. We have also found them in the esophagus, stomach, uterus and larynx.

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A CASE OF MICROAEROPHILIC HEMOLYTIC STREPTOCOCCUS INFECTION OF A PILONIDAL DIMPLE

R. HACKMEYER, M.D.*

AND

FIRST LIEUTENANT EARL L. ROYER, M.C., A.U.S.

ST. LOUIS

According to Meleney and Johnson,[1] hemolytic microaerophilic streptococci are found commonly in the intestinal tract. The surprising thing, therefore, is the relative rarity with which this type of infection is encountered in a proctologic practice. We hesitated to report another case of infection in the pilonidal area because of the extensive literature on that subject today. However, since we could find no report in the English literature describing this type of case and, after discussing this particular case both at the time of treatment and subsequently, and learning that the clinical picture caused by this organism in the anosacral region was not common knowledge, we felt justified in adding just one more note to what has already been written on the subject.

In 1935, Meleney[2] reported a clinical entity which he described as follows: "The disease begins gradually. What appears to be an ordinary drainage tract, from a deep or subcutaneous abscess, fails to follow the usual course of healing. Improvement, which may have been present in the early stage of the infection, gradually ceases. The skin margins become undermined with liquefaction of subcutaneous fat and connective tissue. There is no gangrene of the skin, but the edges roll in. The undermining progresses. . . . In one or more places, in the neighborhood of the lesion, the skin may take on a dull red or bluish appearance. It is then found that the undermining has extended beneath this area and the skin has become thinned out as if it were being liquefied from beneath. After a number of weeks, a small opening appears in this area. . . . The lesion may show slight improvement from day to day over a period of several weeks and then suddenly, within a period of a few days, all the benefit so slowly gained may be lost and the disease may extend more rapidly than ever. . . . After months or years of suppuration the lesion may gradually heal spontaneously, or burrow deeply and produce death either by erosion into a large vessel, or by the gradual development of amyloid degeneration of the liver, spleen and kidneys. . . ."

In 1926, Brewer and Meleney,[3] and in 1931, Meleney[4] described cases of progressive gangrenous infection of the skin and subcutaneous tissues. In these reports, a microaerophilic *nonhemolytic* streptococcus along with a hemolytic staphyloccus aureus were considered the etiologic agents. Because of this work, it is emphasized that clinically there is a considerable difference between infec-

*Assistant, Department of Surgery, St. Louis University School of Medicine.



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tions in which the microaerophilic hemolytic and the nonhemolytic streptococci are causative factors; the former being less active in its course and less destructive to the skin and subcutaneous tissue.

E. Parker Hayden[5] points out other manifestations of microaerophilic hemolytic streptococcus infections that occur about the anus, like the "watering pot fistula" with its many superficial sinuses, which may extend to the groin or onto the scrotum, and may resemble lymphogranuloma inguinale. Further he quotes Dr. Champ Lyons' work in the Surgical Department of the Massachusetts General Hospital in which was accumulated a large series of chronic fistulae from which were isolated different anaerobic strains of streptococci.

For emphasis, the clinical syndrome caused by this anaerobic streptococcus is fortunately different from the acute fulminating infections caused by the virulent aerobic streptococcus as described by Hayes.[6] In the anosacral region, the initial phase is much like any acute abscess and is probably due to a mixture of organisms, the anaerobic hemolytic streptococcus being present originally or introduced later. Meleney[2] felt that the essential organism in producing the characteristic clinical picture was probably a hemolytic streptococcus which preferred an anaerobic environment but was capable of adapting itself to aerobic conditions. He preferred the term microaerophilic to anaerobic. Topley and Wilson[7] defined the term microaerophilic as "growing best under lowered oxygen pressure." This streptococcus therefore grows best under wound edges, spreads under the skin like its nonhemolytic counterpart, produces a low grade infection and no fever as long as drainage is free, persists for years, produces much firm fibrous tissue, shows pin-point sinus openings from which pus exudes, and progresses as described in the quotation from Meleney. So characteristic is the picture that the diagnosis can be made on it alone, and this attitude was justified in this case by persisting and by finding the offending organism on the fifth culture.

REPORT OF CASE

The patient (H. T. W.), a white male 36 years of age, was admitted to the Station Hospital at Jefferson Barracks on August 13, 1945, complaining of tenderness and a "hard area" in the right buttock. The past history was irrelevant. His present illness dated back seven years at which time a "boil" in the sacrococcygeal area was incised and drained. This healed and he had no difficulty until March 1941 when another "boil" was incised in this area. This healed, but since then he noted a discharge from time to time, preceded by local swelling and tenderness. The "hard area" in the right buttock had developed slowly since 1941.

Examination.—The patient was a well nourished, healthy looking male, who appeared younger than the stated age. The general physical examination revealed no abnormalities except the present illness. In the sacrococcygeal area, in the midline and extending over onto the right buttock, there was an indurated area about six inches long and from two and a half to three inches wide. In the midline, at the lower end of the induration, there was a draining sinus. A probe could be passed to the right into the indurated area and also toward the right side of the anus to a point half way around its circumference. The skin overlying the probe was thin, slightly bluish and showed two healed scars, both near the anus. No other sinus openings were noted and the anoscopic examination revealed no evidence of any abnormality, past or present, and repeated examinations revealed no internal opening of a fistula in ano. Blood pressure was 140/66. Blood examination showed hemoglobin of 90 per cent (Sahli). White blood count was 9,650. Differential: neutrophils 64 per cent, lymphocytes 33 per cent, monocytes 2 per cent, and eosinophils 1 per cent. Urinalysis was normal except for from 1 to 3 white blood cells per high power field. A diagnosis of chronically infected pilonidal cyst was made.

Progress.—The patient was put on a regime of hot sitz baths for one hour twice a day and was given sulfadiazene, 1 gm. four times a day, after an initial dose of twice that amount, for four days. After four days, he was operated on under low spinal anesthesia.

First Operation (August 17, 1945).—The sacrococcygeal area usually involved in pilonidal disease was excised en bloc. The tract leading from the midline sinus opening to the perianal region was laid open, as was the sinus leading into the indurated area. The edges were trimmed and the granulation tissue was curetted off the fibrous base. It was deemed wise not to remove the entire area of induration because the wound would be too extensive, and previous experience with somewhat "similar" cases justified a more conservative approach. At this time, it was first appreciated that we were dealing with an infected dimple and not a pilonidal sinus. No idea about any "specific" organism came to mind at this time, although it was evident that the infection had burrowed to the perianal region. Pathology laboratory report showed "Sacrococcygeal dimple with chronic inflammation."

Postoperative Course.—The patient reacted well. Sulfadiazene was continued for three days. Then the wound was dressed and azochloramide in oil dressings were applied daily.

August 25, 1945: Wound was infected. Granulations were greyish and much purulent discharge was present. Continuous hot packs were applied and complimented by warm potassium permanganate (1 to 5,000) sitz baths three times a day.

September 2, 1945: Wound was improved. Wet packs and sitz baths were discontinued. Penicillin, 20,000 units were given intramuscularly every four hours day and night.

September 4, 1945: There was marked improvement. Granulations were healthy and the wound smaller with less drainage. The wound was dressed daily.

September 10, 1945: Penicillin was discontinued after he had received a total of 840,000 units. A small pinpoint sinus opening was noted in the right wound margin discharging a thin purulent material into the wound.

Second Operation (September 12, 1945).—The sinus tract was laid open under spinal anesthesia. It was curetted and the overhanging margins trimmed away.

September 16, 1945: Penicillin was started again and 20,000 units given every four hours.

September 18, 1945.—Healing progressed slowly. New sinus openings were noted. A note was made, "This is a microaerophilic hemolytic streptococcus type of infection." Culture was taken and anaerobic incubation requested. Report showed nonhemolytic staphylococcus albus and coliform group of organisms present. Penicillin was continued.

September 20, 1945.—Healing progressed slowly. The wound was dressed daily and dressings were kept moist with penicillin (500 units per cc. in saline).

September 24, 1945.—Wound was healing and appeared smaller. Several small new pin-point draining sinuses were present in the right wound margin just deep in the skin. Penicillin was continued locally and parenterally.

September 25, 1945.—Parenteral penicillin was discontinued. Total penicillin for this course was 1,040,000 units.

September 27, 1945.—Wound was smaller. Sinus openings were still present. Penicillin soaked dressings were discontinued. Wound was cleaned daily and dry dressings applied.

Third Operation (October 5, 1945).—Under low spinal anesthesia, a block of skin and subcutaneous tissue, down to the gluteal fascia, about the size of a 50 cent piece, was excised and all tracts were incised, curetted and edges trimmed. One tract led well into the healthy fat beyond the indurated area. Culture was taken again. Report showed no hemolytic streptococcus present.

October 7, 1945.—Wound was infected. Hot saline dressings were applied continuously.

October 9, 1945.—Very little improvement was noted. Zinc peroxide paste dressings were applied daily. Penicillin 20,000 units every four hours, was started again and a culture was taken. Report showed hemolytic staphylococcus albus present.

October 12, 1945.—Zinc peroxide paste dressings were applied once daily. Wound was improving in appearance. Parenteral penicillin was continued.

October 17, 1945.—There was very little change. Considerable greenish purulent discharge was present. One per cent acetic acid packs were applied to the wound by day and zinc peroxide paste dressing by night.

October 21, 1945.—The greenish discharge had lessened. One per cent acetic acid packs by day and zinc peroxide paste dressing by night were continued.

October 22, 1945.—Four new sinus openings were noted. Zinc peroxide was tested and found ineffective according to the test described by Meleney.[8]

Fourth Operation (October 23, 1945).—Four sinus tracts were laid open, curetted, edges trimmed and packed with gauze saturated with zinc peroxide paste. Culture was taken from deep in the sinuses. Report showed hemolytic staphylococcus albus present. Penicillin was discontinued. Total dosage for this course was 1,800,000 units.

October 24, 1945.—Sinus tract in lower end of wound and perianal region was infected.

October 26, 1945.—Smear was taken and personal request for anaerobic culture made to chief of laboratory. Report showed anaerobic alpha hemolytic streptococcus present. "Active" zinc peroxide dressings by day and 1 per cent acetic acid dressings by night were used.

October 30, 1945.—Wound was much improved. Granulations were healthy and flat. Skin grafting was considered. Dressings were continued.

Fifth Operation (November 3, 1945).—Under local anesthesia, twenty thin pinch grafts were removed from the left flank and placed on granulating wound of the right buttock. Grafts were held in place with one layer of gauze fastened on edges with collodion. Penicillin, 20,000 units every three hours parenterally, was started.

November 4, 1945.—Outer dressings were changed. Continuous wet penicillin (500 units per cc. in saline) dressings to grafts were continued until November 9.

November 9, 1945.—Dressings were changed. All grafts took and were spreading. Penicillin was continued locally. Parenteral penicillin was discontinued. Total dosage for this course was 980,000 units.

November 15, 1945.—The wound was nearly epithelialized. Daily sitz baths and protective dressings were applied.

November 22, 1945.—Wound was healed and patient was discharged as cured.

Follow-Up.—The patient was seen June 20, 1946. The wound was well healed with healthy supple scar.

COMMENT

(1) A case of an infection of a pilonidal dimple by several organisms, including a microaerophilic hemolytic streptococcus is reported.

(2) The latter organism was not suspected until after operation, when pin-point sinus openings occurred and the "healing" followed the uncertain course as described in the introduction.

(3) Multiple cultures were necessary to prove the presence of the offending organism, mostly because of the failure of the laboratory to culture the material anaerobically. The clinical picture was pathognomonic and encouraged persistence and a firm conviction as to the etiologic agent.

(4) The infection was limited to the structures external to the deep fascia at all times.

(5) Four operations of excision and incision were necessary before skin grafting was possible. Zinc peroxide dressings seemed effective after the activity of the drug was assured by test.

(6) Four courses of penicillin were given. The first three were given as 20,000 units every four hours and the last as 20,000 units every three hours for a total of 4,660,000 units divided into the four courses: First course (eight days), 840,000 units; second (ten days), 1,040,000 units; third (sixteen days), 1,800,000 units, and fourth (seven days), 980,000 units. While the wound appeared cleaner and healing progressed with each course, the dosage was either inadequate (as regards spacing of doses to acquire and maintain an effective level) or penicillin was not totally effective in eradicating this organism. New sinus tracts appeared during and after each course, except after the last two.

(7) Persistence in draining new tracts, plus the use of active zinc peroxide paste dressings changed twice daily, seemed to be the keynote to eradication of this infection.

SUMMARY

(1) Microaerophilic hemolytic streptococcus infection of the skin and subcutaneous structures in the anosacral region exists and can be diagnosed clinically, and we believe the course and appearance are pathognomonic.

(2) Penicillin does not seem to be effective in totally eradicating this infection.

(3) In using zinc peroxide the product should be tested for potency as advised by Meleney.

(4) Pinch grafts will take in this area in a properly prepared bed of granulations.

(5) Judicious incision and excision is indicated in some parts of this area (perianum) but, perhaps, in the sacrococcygeal area, complete excision and subsequent skin grafting would lessen the time required for complete recovery.

539 N. Grand.

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2. Meleney, F. L.: Zinc Peroxide in Treatment of Microaerophilic and Anaerobic Infections, With Special Reference to Group of Chronic, Ulcerative, Burrowing, Non-gangrenous Lesions of Abdominal Wall Apparently Due to Microaerophilic Hemolytic Streptococcus, Ann. Surg. **101**:997-1011 (April) 1935.
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BOOK REVIEWS

X-Rays and Radium in the Treatment of Disease of the Skin. By George M. MacKee, M.D., Professor of Clinical Dermatology and Director of Department of Dermatology (Skin and Cancer Unit) New York Post-Graduate Medical School and Hospital, Columbia University, and Anthony C. Cipollaro, M.D., Assistant Professor of Dermatology and Assistant Director of Department of Dermatology (Skin and Cancer Unit) New York Post-Graduate Medical School and Hospital, Columbia University. Contributor Hamilton Montgomery, M.D., Associate Professor of Dermatology, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minn. Fourth Edition, Thoroughly Revised, Illustrated with 321 Engravings and 4 colored plates. Philadelphia, Lea & Febiger. 1946. Price $10.00.

This book is so authorative and complete that it is in reality the Bible of the dermatologist as well as the roentgenologist who treats skin diseases.

This edition is smaller than the previous edition since several long case histories and irrelevant and obsolete technical data have been eliminated.

Hamilton Montgomery has contributed a chapter on radiodermatitis which is complete and well illustrated. This chapter as well as the one on the medicolegal aspects should be read by all physicians who use x-ray therapy. Many physicians who should know better get careless and thoughtless occasionally with serious end results to themselves and their patients.

The authors point out the important fact that the wiser the dermatologist the less frequently he employs x-ray therapy in his practice. The great strides being made in medicine and the improvement in the training of the dermatologist have pointed the way to more resourcefulness in therapy, the net result being better results with greater safety. N. T.

Allergy in Theory and Practice by Robert A. Cooke, M.D., Sc.D., F.A.C.P., Attending Physician and Director of the Department of Allergy, The Roosevelt Hospital, New York City. In Association with Horace S. Baldwin, Robert Chobot, R. Clark Grove, Joseph Harkavy, Selian Hebald, Michael Heidelberger, Margaret B. Strauss, Paul Klemperer, Louis Schwartz, W. C. Spain, Dudley D. Stetson, Albert Vander Veer, Mathew Walzer. W. B. Saunders Company, Philadelphia and London. 1947. Price $8.00.

This is an excellent review of the subject of allergy. It presents an unbiased discussion of the principles and theory of the allergic state and their application, not only to the diseases commonly accepted as being due to hypersensitivity but also to those encompassed by the broader aspects of allergy, such as streptococcus infections, pneumococcal pneumonia, periarteritis nodosa, lupus erythematous. Opposing theories are fairly evaluated and when there is disagreement it is expressed with cogent reasoning and unmistakable terms.

Throughout the book it is emphasized that to make the diagnosis of allergy in any given clinical situation, the symptoms must be explained by the accepted immunopathologic mechanism of allergy and the patient possess the clinical criteria of the allergic individual; that this is especially necessary in those clinical situations of obscure etiology which are subjected to investigation with the forethought of allergy, for here therapeutic and dietary measures are often employed as diagnostic means, the results of which are incident to many curious coincidences and that unnecessary dietary restrictions often lead to emotional instability concerning and psychic conditioning of their affliction and so to unwise, even harmful, dietary habits.

In this manner, allergy of the bronchi, the upper respiratory tract, the skin, the nervous system, the cardiovascular system, the digestive system, the eye, and of infancy and childhood are discussed. Additionally, separate chapters deal with bacterial, food, physical and drug allergy, and with technics of diagnosis and of preparing allergenic extracts. The final chapter discusses nonspecific causes or influences (psychic, nutritional, endocrine, physical exertion, fatigue, exposure to cold, humidity, irritating gases, alcohol, tobacco) in relation to allergic diseases. C. H. E.

Medical Uses of Soap, a Symposium, Edited by Morris Fishbein, M.D., 41 Illustrations. J. B. Lippincott Company, Philadelphia. 1946. $3.00.

This edition includes a chapter on the surgical uses of soap by Dr. E. P. Jordan. Important subjects discussed include the preparation of the hands and scrubbing before operation, preoperative use of soap before operation, soap and water treatment of the operative and traumatic wound, soap and water therapy of burns and the proper selection of soaps.

The medical uses of soap are well handled by a group of men who have written several important articles on the subject. The use of soap in skin diseases, the care of the normal skin and hair, the use of the newer soapless detergents and the irritating effects of soaps are described in an authoritative manner.

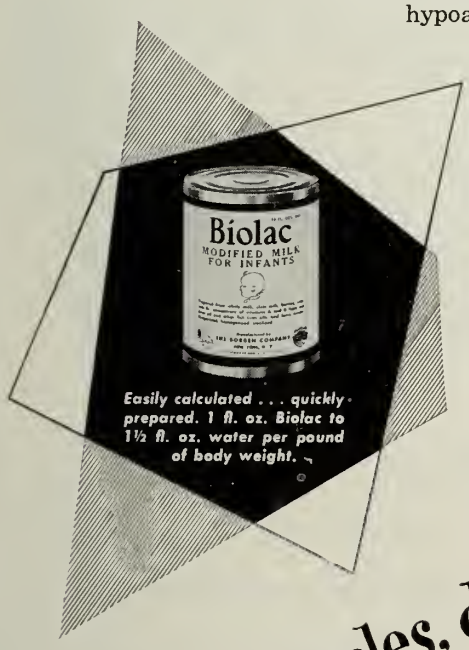
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BOOKS RECEIVED

Global Epidemiology. A Geography of Disease and Sanitation. By James Stevens Simmons, B.S., M.D., Ph.D., Dr. P.H., Sc.D. (Hon.) Brigadier General, United States Army; Chief, Preventive Medicine Service, Office of the Surgeon General, U.S. Army; Member, National Research Council and Committee on Medical Research, O.S.R.D.; Lecturer in Tropical Medicine, Army Medical School; Tom F. Whayne, A.B., M.D. Lieutenant Colonel, M.C., A.U.S.; Formerly Director, Medical Intelligence Division, Preventive Medicine Service, Office of the Surgeon General, United States Army; Gaylord West Anderson, A.B., M.D., Dr. P.H. Lieutenant Colonel, M.D., A.U.S.; Director, Medical Intelligence Division, Preventive Medicine Service, Office of the Surgeon General, United States Army; Director, School of Public Health, University of Minnesota; Harold Maclachlan Horack, B.S., M.D. Major, M.D., A.U.S.; Chief, Dissemination Branch, Medical Intelligence Division, Preventive Medicine Service Office of the Surgeon General, United States Army; Instructor in Medicine, Duke University School of Medicine, and collaborators. Volume One. Part One: India and the Far East. Part Two: The Pacific Area. Philadelphia: J. B. Lippincott Co. 1944.

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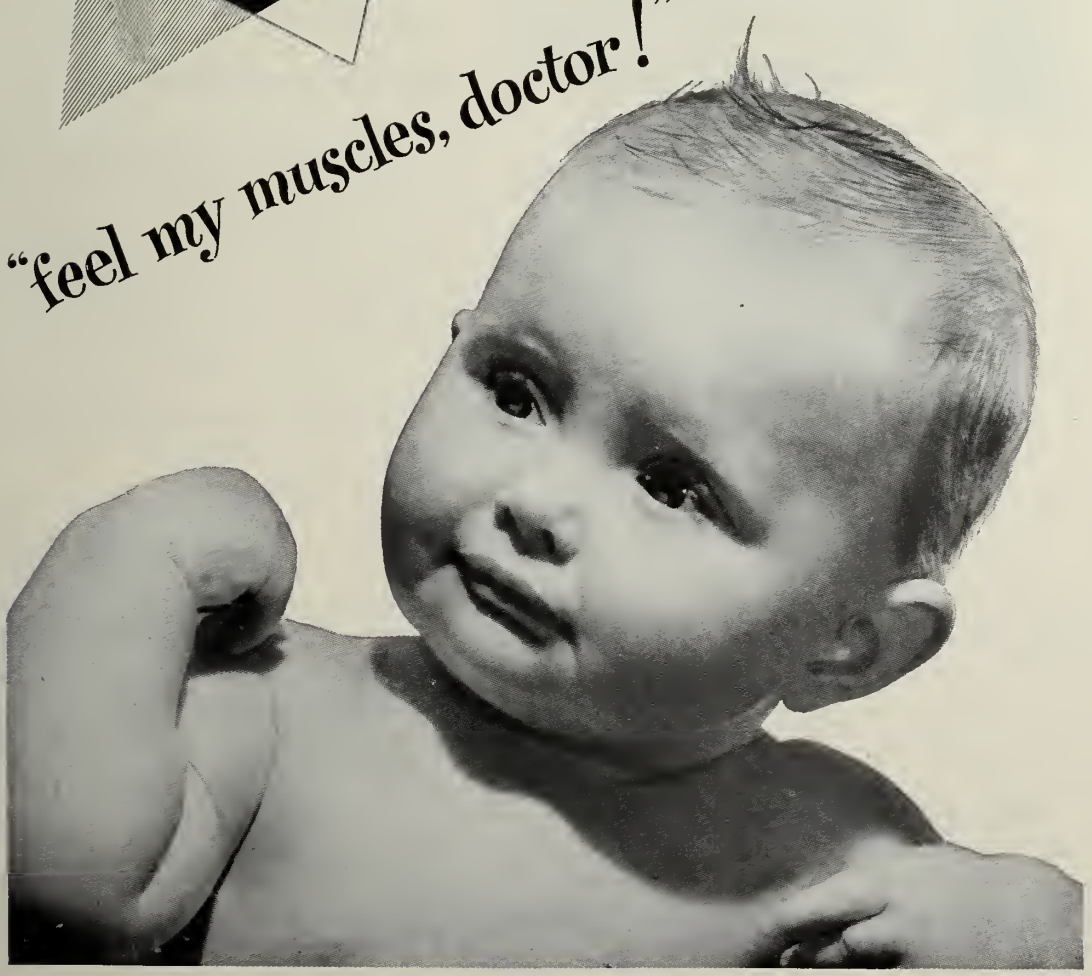
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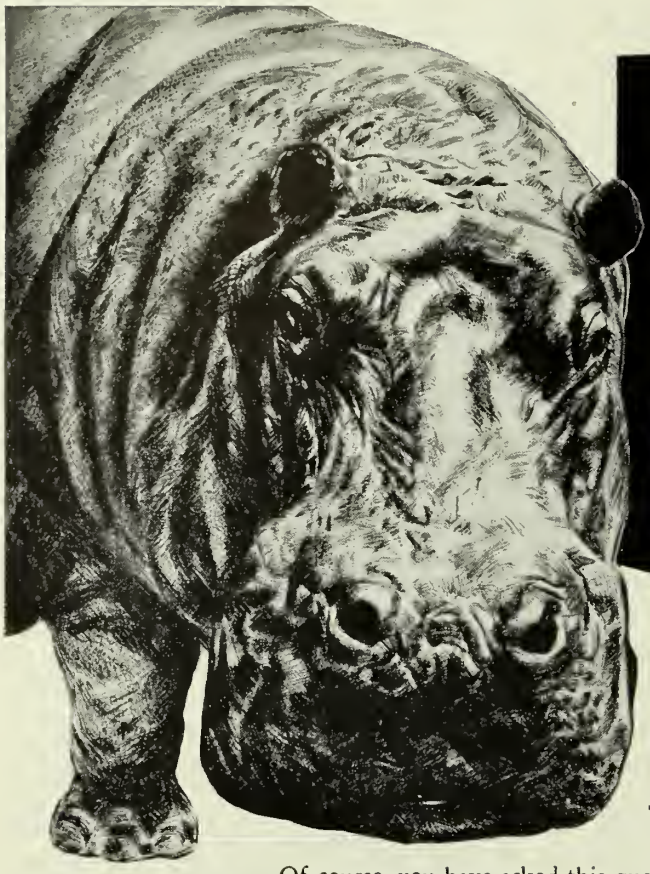
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MAY, 1947

EDITORIALS

NATIONAL CONFERENCE OF COUNTY MEDICAL SOCIETY OFFICERS

The American Medical Association has formed a new organization of its members, known as "National Conference of County Medical Society Officers." The first meeting will take place in Atlantic City, N. J., Sunday, June 8, 1947, at 2:00 p. m.

The purpose of this annual conference is to discuss ways and means of the facilities of medical organization — national, state and county — being made available to the individual doctor. All county medical society officers are invited to this meeting.

The program is now in the formative stage. Suggestions and ideas as to how this conference may best achieve its purpose, that is, to "make the American Medical Association the working partner of every individual physician" are invited. Please contact Dr. Harry B. Stauffer, Chairman, Trust Building, Jefferson City, or the office of the Association for further information.

OLIN WEST, M.D., RESIGNS AS PRESIDENT-ELECT OF AMERICAN MEDICAL ASSOCIATION

Olin West, M.D., Chicago, President-Elect of the American Medical Association, has resigned because of ill health.

Edward L. Bortz, M.D., Philadelphia, Vice President, will succeed Dr. West and will be inaugurated as President at the annual session in Atlantic City in June.

Dr. Bortz was born in Greensburg, Pa., February 10, 1896. He lives now in Philadelphia. He has been a Fellow of the American College of Physicians since 1929, and he received the certificate of the American Board of Internal Medicine in 1937. In 1942 he was made a member of the Council on Scientific Assembly of the American Medical Association and became its chairman in 1945. He became a Delegate to the American Medical Association the same year. He is chairman also of the Committee on National Emergency Medical Service of the Association.

During World War II, Dr. Bortz served in the Naval Medical Corps, attaining the rank of Captain prior to being released to inactive duty in January, 1946.

EIGHTY-NINTH ANNUAL SESSION

The Eighty-ninth Annual Session of the Association convened in Kansas City on March 31, April 1 and 2, with 930 physicians, guests and exhibitors registered for the session.

Morris B. Simpson, M.D., was installed as President at the Wednesday afternoon session of the House of Delegates by Howard B. Goodrich, M.D., Hannibal, retiring President. Robert Mueller, M.D., St. Louis, was elected President-Elect. Other officers elected were: Vice Presidents, O. T. Blanke, M.D., Joplin, S. M. Bailey, M.D., Malden, Donald M. Dowell, M.D., Chillicothe; Speaker of the House of Delegates, Ralph E. Duncan, M.D., Kansas City; Vice Speaker, W. S. Sewell, M.D., Springfield; Treasurer, C. E. Hyndman, M.D., St. Louis; Secretary, W. A. Bloom, M.D., Fayette. R. E. Schlueter, M.D., St. Louis, and James R. McVay, M.D. Kansas City, were elected Delegates to the American Medical Association with F. G. Pernoud, M.D., St. Louis, and A. J. Campbell, M.D., Sedalia, alternates.

At the Annual Banquet in Honor of Past Presidents, at which Dr. Goodrich presided, Past Presidents of the Association were presented keys in honor of their service to the Association. A sterling silver tray was presented to R. L. Thompson, M.D., St. Louis, Secretary-Editor Emeritus of the Association.

An award for the best scientific exhibit was made jointly to the Missouri Bureau for the Blind and the Missouri School for the Blind, exhibits sponsored by the Committee on Conservation of Eyesight. There were thirty scientific exhibits and seventy-nine technical exhibits displayed in the arena of the Auditorium. Scientific sessions and the meetings of the House of Delegates were held in the Little Theater of the Auditorium.

NEWS NOTES

John H. Dyer, M.D., Warrenton, was honored by his community for fifty-five years of medical practice in a program and reception at the College Methodist Church in Warrenton on Februray 2.

C. Souter Smith, M.D., Springfield, was installed as president of the Kansas City Society of Ophthalmology and Otolaryngology on April 2. Other Missouri officers are Alvin Baer, M.D., president-elect, John C. Howard, M.D., vice president, both of Kansas City.

Joseph L. Fisher, M.D., St. Joseph, was elected

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president of the staff of the Missouri Methodist Hospital, St. Louis, for 1947. Other officers are J. M. Hughes, M.D., vice president; Maxwell Day, M.D., secretary-treasurer; executive committee, Claude S. Grant, M.D., O. E. Whitsell, M.D., and H. W. Carle, Jr., M.D.

Erwin T. Huber, M.D., St. Louis, spoke at a dinner meeting of the obstetric and gynecologic societies of Chicago, St. Louis and Kansas City in Kansas City on April 12. His subject was "An Anatomical Study of the Nerve Supply of the Perineum and Vulva With Clinical Adaptation in Obstetrics." The dinner meeting concluded a one-day conference.

Speakers who have appeared on programs of component medical societies recently under the auspices of the Committee on Postgraduate Course follow:

M. Pinson Neal, M.D., Columbia, spoke at a meeting of the Chariton-Macon-Monroe-Randolph County Medical Society on "Diagnoses Commonly Missed in General Practice" and at a meeting of the Sixth Councilor District on "Problems in the Diagnosis of Pernicious Anemia."

Raymond Mezera, M.D., St. Louis, spoke at a meeting of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society on "Streptomycin" and at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on the same subject.

Ralph R. Coffey, M.D., Kansas City, spoke at a meeting of the Sixth Councilor District on "Common Diagnostic Problems in Surgical Principles."

R. O. Muether, M.D., St. Louis, spoke at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on "What the General Practitioner Should Know About the Rh Factor" and at a meeting of the Tenth Councilor District in conjunction with the Southeast Missouri Medical Association on "Jaundice."

Paul Hagemann, M.D., St. Louis, spoke at a meeting of the Sixth Councilor District on "The Chemotherapy of Streptococcal Infection."

Richard B. Schutz, M.D., Kansas City, spoke before a meeting of the Sixth Councilor District on "Obstetrical Principles as Related to General Practice."

Willard Allen, M.D., St. Louis, spoke at a meeting of the Tenth Councilor District on "Diagnosis and Treatment of Common Obstetrical Problems in General Practice."

Graham Asher, M.D., Kansas City, spoke at a joint meeting of eleven county societies at Nevada on "Classification of Hypertension; the Basis of Rational Treatment."

Stanley Hampton, M.D., St. Louis, spoke at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on "Allergy Problems of Spring and Early Summer in General Practice."

William J. Stewart, M.D., Columbia, spoke at a meeting of the Chariton-Macon-Monroe-Randolph County Medical Society on "Common Fractures Seen in General Practice and Their Treatment."

Joseph Hardy, M.D., St. Louis, spoke at a meeting of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society on "Office Gynecology."

C. R. Bruner, M.D., Columbia, spoke at a meeting of the Chariton-Macon-Monroe-Randolph County Medical Society on "Diagnosis and Treatment of Ear, Nose and Throat Diseases Seen in General Practice."

W. Merritt Ketcham, M.D., and Russell W. Kerr, M.D., Kansas City, spoke at a joint meeting of nine county societies at Chillicothe on "Hypertensive Heart Disease."

Harry Lawler, M.D., St. Louis, spoke at a meeting of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society on "Diarrhea in Infants."

Charles Greenberg, M.D., St. Joseph, spoke at a joint meeting of nine county medical societies at Chillicothe on "The Relation of Urology to General Practice."

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for May and June, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

May 2: Gynecology and Genitourinary.
May 7: Miscellaneous.
May 9: Breast.
May 14: Skin.
May 16: Cervix.
May 21: Gastrointestinal.
May 23: Head and Neck.
May 28: Skin.
May 30: Holiday.
June 4: Miscellaneous.
June 6: Gynecology and Genitourinary.
June 11: Skin.
June 13: Breast.
June 18: Gastrointestinal.
June 20: Cervix.
June 25: Skin.
June 27: Head and Neck.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL

1947

(Societies which have paid dues for all members and date placed on honor roll)

Camden County Medical Society, December 9, 1946.
Morgan County Medical Society, December 14, 1946.
Moniteau County Medical Society, December 15, 1945.
Audrain County Medical Society, December 19, 1946.
Miller County Medical Society, December 19, 1946.
Ste. Genevieve County Medical Society, December 23, 1946.
Laclede County Medical Society, December 27, 1946.
Webster County Medical Society, December 30, 1946.
Mercer County Medical Society, January 1, 1947.
Callaway County Medical Society, January 4, 1947.
Scott County Medical Society, January 7, 1947.
DeKalb County Medical Society, January 17, 1947.
Taney County Medical Society, January 18, 1947.
Mississippi County Medical Society, January 27, 1947.
Dallas-Hickory-Polk County Medical Society, January 30, 1947.
Pike County Medical Society, January 30, 1947.
Barton-Dade County Medical Society, February 2, 1947.
Carroll County Medical Society, February 4, 1947.
Harrison County Medical Society, February 7, 1947.
Howard County Medical Society, February 9, 1947.
Perry County Medical Society, February 11, 1947.
Bates County Medical Society, February 14, 1947.
Carter-Shannon County Medical Society, February 24, 1947.
Henry County Medical Society, February 25, 1947.
Christian County Medical Society, February 25, 1947.
Linn County Medical Society, February 25, 1947.
Cape Girardeau County Medical Society, February 25, 1947.
Montgomery County Medical Society, February 27, 1947.
Andrew County Medical Society, February 27, 1947.
Cass County Medical Society, February 27, 1947.
Lewis-Clark-Scotland County Medical Society, March 3, 1947.
Pettis County Medical Society, March 5, 1947.
Lincoln County Medical Society, March 5, 1947.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR
St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on March 12 at 8:30 p. m. at the Health Center, St. Louis County Hospital, Clayton.

Dr. Sutter introduced John Skinner, M.D., a guest, and G. W. Strauchen, M.D., and C. T. Shepard, M.D., new members of the Society.

Edward Reinhard, M.D., St. Louis, spoke on "The Use of Radio Active Isotropes in Tracer Studies as a Means of Giving Radiation Treatment." His paper was indeed a revelation and a good beginning for the age of atomic medicine. His presentation was discussed by Drs. Breckenridge, Backlar, Kingsland, Hayward, Steubner, Berwald and Augustine Jones. He was given a rising vote of thanks.

Martyn Schattyn, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR
Vernon-Cedar County Medical Society

The Vernon-Cedar County Medical Society held a dinner meeting in Nevada on April 7, at the 54 Supper Club with thirty-six members and guests present. R. B. Wray, M.D., president, presided.

C. Braxton Davis, M.D., Nevada, reported on the Annual Session of the Missouri State Medical Association. He stressed the desirability of a more extensive participation in the Blue Cross plan for prepaid hospitalization in Nevada and the surrounding territory.

T. B. Todd, M.D., and Ralf Hanks, M.D., Nevada, led a discussion of several phases of the recent state health survey of Vernon County. In the open forum discussion the Woman's Auxiliary pledged cooperation in the efforts of the medical society to further prepaid hospitalization plans.

It was decided to invite a representative of the Blue Cross to appear on the program at the next meeting.

The following medical advisory committee to the Nevada Hospital board was appointed: E. R. King, M.D., W. S. Love, M.D., R. B. Wray, M.D., R. W. Pearse, M.D., and F. L. Martin, M.D.

Paul L. Barone, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR
Barry-Lawrence-Stone County Medical Society

The Barry-Lawrence-Stone County Medical Society met April 8 at Rockaway Beach Hotel for a steak dinner with nineteen present.

Wallis Smith, M.D., Springfield, Councilor, reported on the recent 89th Annual Session of the Missouri State Medical Association and his own plans for the immediate future of the district.

W. S. Sewell, M.D., Springfield, president of the Community Health League, reported on its activity and plans for the next few months.

Mr. Raymond McIntyre, Field Secretary, discussed the rural practitioner, his medical association and hyphenation as an improvement for medical society meetings.

Daniel L. Yancey, M.D., Springfield, gave an interesting paper on "Fractures of the Elbow."

Mr. Bethel Eiserman, cashier of the Bank of Branson, discussed the plans for the new hospital. He reported that Mr. Skaggs, founder of the Safe Way store Company Inc., promised to build a modern hospital for the Branson community. The hospital is to be a three story, two color brick and contain thirty-two beds. It is to be completely equipped with arrangements for perpetuation and be an outright gift with "no strings attached," for the community. The blueprints have been completed and the donor is anxious for the building to be completed as soon as possible.

The Society moved to invite the Christian and Taney county medical societies to hyphenate with the Barry-Lawrence-Stone County Medical Society.

The next meeting will be on the second Tuesday in May at Crane for a strawberry dinner.

Kenneth Glover, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR
South Central Counties Medical Society

The South Central Counties Medical Society held a dinner meeting at the El Patio Hotel in Cabool on March 21 with the following members present: J. R. Mott, M.D., Hartville; R. A. Ryan, M.D., R. W. Denney, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains.

Following dinner Dr. Hogg invited the members to his new office which is nearing completion for an inspection and for the remainder of the program. The office was found to be far more elaborate and convenient than often is found outside the larger cities.

There being no speaker for the evening, the rest of the time was spent in an informal discussion of various subjects, especially that of motion pictures for programs, and reports of cases.

The meeting adjourned to meet in Mountain Grove on April 18. A. C. Ames, M.D., Secretary.

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1 National Research Council Bull. No. 109. 1943, pp. 18-21.

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PRESIDENT'S MESSAGE

Greetings:

It is a privilege and an honor to serve the Woman's Auxiliary as President.

I feel sure that with the officers and chairmen of standing committees we will endeavor to maintain the high standards that have been attained.

The convention in Kansas City was outstanding. Congratulations to the retiring President, Mrs. W. E. Koppenbrink, and the Jackson County Auxiliary Committee who so ably planned the convention. We were honored to have as our guest, our National President, Mrs. Jesse D. Hamer, Phoenix, Arizona. Mrs. Hamer stressed the recruitment of nurses which is a great need in our nation today. We were also honored by the attendance of a number of our Past Presidents. The Jackson County Auxiliary did everything for our pleasure and comfort. Words fail to express my appreciation for the lovely tea at the home of Mrs. Sam Roberts, the two beautiful and well appointed luncheons with splendid guest speakers, the inspiring and delightful music throughout the convention, the lovely corsages from my own auxiliary and Jackson County Auxiliary and beautiful red roses from Dr. and Mrs. W. H. Breuer, and the dinner and style show at the Woman's City Club was a climax of genuine fellowship. The 1946 Convention is really a treasure of happy memories.

The goal before us now is for as many as possible to attend the convention at Atlantic City. I hope that each Auxiliary will have a representation. One hundred years of service given by the American Medical Association is a great achievement and each one will surely want to share in this celebration.

The *Hygeia* Chairman, Mrs. G. Wilse Robinson, Kansas City, has presented plans for her program for 1947. Congratulations, Mrs. Robinson—a fine record.

We have constructive work to do, and the accomplishment of this work depends upon the interest and effort of the individual member. With your cooperation we will reach out and interest the doctors' wives who do not know of the opportunities offered by the Medical Auxiliary.

MRS. W. L. ALLEE, President.

OFFICERS 1947

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Revisions, Mrs. David S. Long, Harrisonville.

National Bulletin, Mrs. M. Pinson Neal, 1309 Bonchelle, Columbia.

Essay, Mrs. W. F. Oehler, 1617 Themis St., Cape Girardeau.

One year directors, Mrs. A. J. Crider, Dixon; Mrs. August Werner, St. Louis; Mrs. W. S. Sewell, Springfield; Mrs. D. P. Dyer, Sedalia; Mrs. M. E. Grimes, St. Joseph.

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SCHOLARSHIP LOAN FUND

The Woman's Auxiliary to the Boone County Medical Society sent a check for $1,000 to the state Treasurer, Mrs. R. C. Porter, on April 16. The money is to be used toward the establishment of a Scholarship Loan Fund.

BOOK REVIEWS

PHARMACOLOGY AND THERAPEUTICS, Originally Written by Arthur R. Cushny, M.A., M.D., LL.D., F.R.S., Late Professor of Materia Medica and Pharmacology in the University of Edinburgh. Thirteenth Edition, Thoroughly Revised by Arthur Grollman, A.B., Ph.D., M.D., F.A.C.P., Professor of Medicine and Chairman of the Department of Experimental Medicine, and Professor of Pharmacology and Chairman of the Department of Physiology and Pharmacology, The Southwestern Medical College; Attending Physician, The Parkland Hospital, and Consultant in Internal Medicine, the Baylor University Hospital, Dallas, Texas; and Donald Slaughter, B.S., M.D., Dean of the Medical School, University of South Dakota; Formerly Professor of Pharmacology and Chairman of the Departments of Physiology and Pharmacology, The Southwestern Medical College, Dallas, Texas. Illustrated with 74 Engravings. Lea & Febiger, Philadelphia. 1947. Price $8.50.

The first edition of this book which appeared in 1899 was recognized as being "the first severely critical, rigorously scientific, general textbook to be written in English by an experimental pharmacologist." Cushny's master hand thus played an important part in the development of knowledge of the subject for a quarter of a century.

The present edition by the new editors is thoroughly revised. They have endeavored to incorporate into it the notable advances in the fields of chemotherapy,

endocrinology and vitamins while retaining those features which characterized the original "Cushny." Much of the older material seems to have been deleted in favor of the more practical therapeutics of modern medicine. H. A. B.

Clinical Hematology, by Maxwell M. Wintrobe, M.D., Ph.D., Professor of Medicine, University of Utah, School of Medicine, Salt Lake City, Utah. Second Edition, Thoroughly Revised. Illustrated with 197 engravings and 14 plates, 10 in color. Lea & Febiger, Philadelphia, 1946. Price $11.00.

This is an excellent book on clinical hematology and should be in the hands of all physicians and pathologists. It should be of great value to laboratory workers also for there are many good sections on technical laboratory methods.

Among the additions which are of special interest are (1) the section on the discovery and synthesis of the Lactobacillus casei factor (folic acid) and its relation to macrocytic anemias; (2) the role of various vitamins in hematopoiesis; (3) an interesting section on the Rh factor; (4) discussion of the nitrogen mustards for the treatment of Hodgkin's disease and related disorders; (5) the metabolism of the erythrocytes; and many other subjects too numerous to mention.

This is a complete revision of a good textbook and should be in the library of all members of the medical profession. Too little is known by many practitioners of the underlying causes of changes in the blood picture; this knowledge can often direct treatment and subsequent cure of the patient. The etiology of many diseases is fully discussed in this book.

It is to be regretted that more space was not devoted to blood picture findings in the numerous infectious diseases, and this is probably the one criticism of the book.

The book is well written, well edited and beautifully illustrated. R. B. H. G.

The Jews and Medicine. Essays. By Harry Friedenwald, M.D., D.H.L. (Hon.), D.Sc. (Hon.), Professor Emeritus of Ophthalmology, University of Maryland. Volume I and II. Baltimore: The Johns Hopkins Press. 1944. Price $7.50.

These two volumes are a series of essays by Dr. Harry Friedenwald, professor emeritus of ophthalmology of the University of Maryland, and one of the grand old men of medicine in Baltimore. The volumes form one of the series of the Johns Hopkins Institute of the History of Medicine.

This is a monumental tribute to the author who has the love of books and of his race deep within his soul. It is also a painstaking research, through his own library and all of the libraries into which he could delve, in the relationship of the Jews to medicine throughout the ages. It illustrates the relationship of Jews to medicine throughout all its facets and is only to be compared to the work of Steinschneider. The bibliography and documentation is enormous. In some places these essays become only a catalogue with notations of varius works, but in most places the personality of the author shines through in a most intriguing manner. The sections on Maimonides are especially fascinating. One of the aphorisms of Maimonides which Dr. Friedenwald quotes is, "Within the sum total of these diseases there is one which is widespread and from which men rarely escape. This disease varies in degree in different men, just as all bodily . . . diseases vary . . . I refer to this: that every person thinks his mind . . . more clever and more learned than it is; . . .

These volumes will be enthusiastically read by those who have a special interest in the subject. Others who are interested in the history of medicine can spend many pleasant hours browsing through its pages. N. O.

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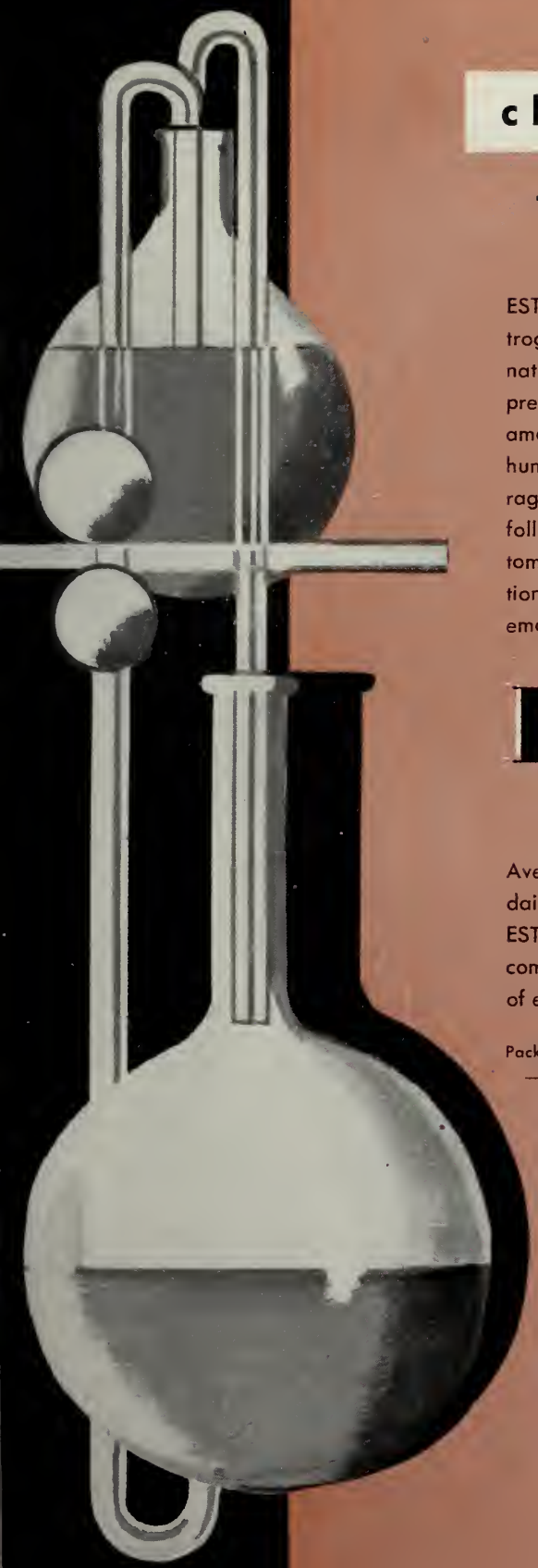
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1. Bickers, W.: Am. J. Obst. & Gynec. 51:100, 1945.

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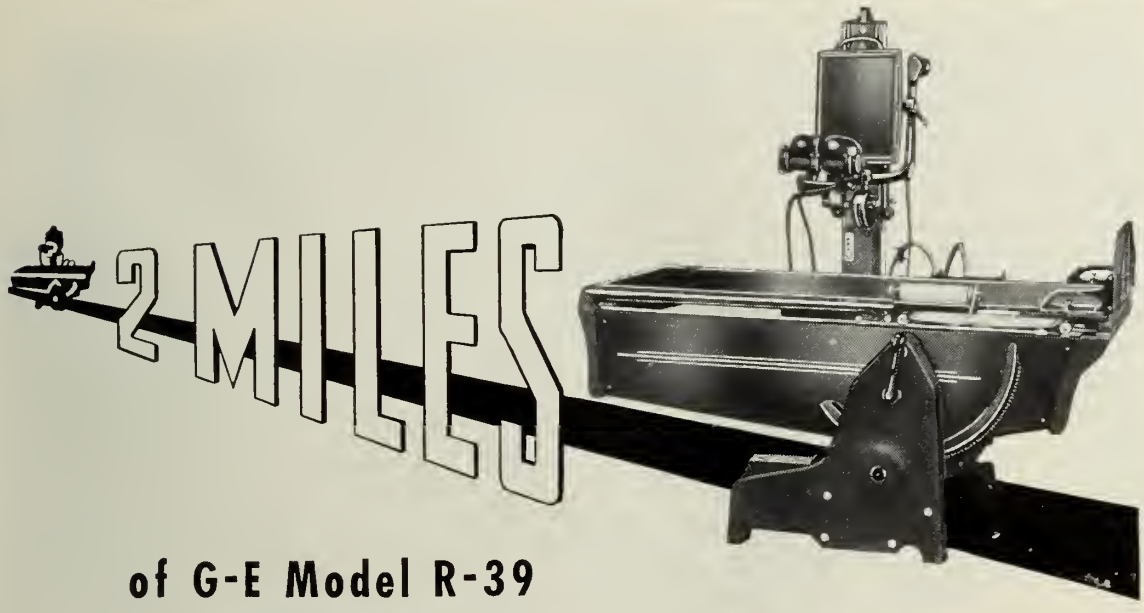


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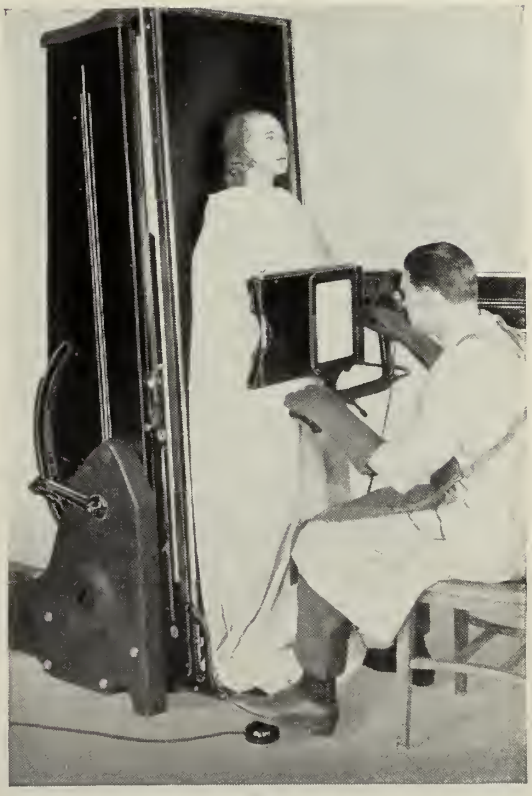
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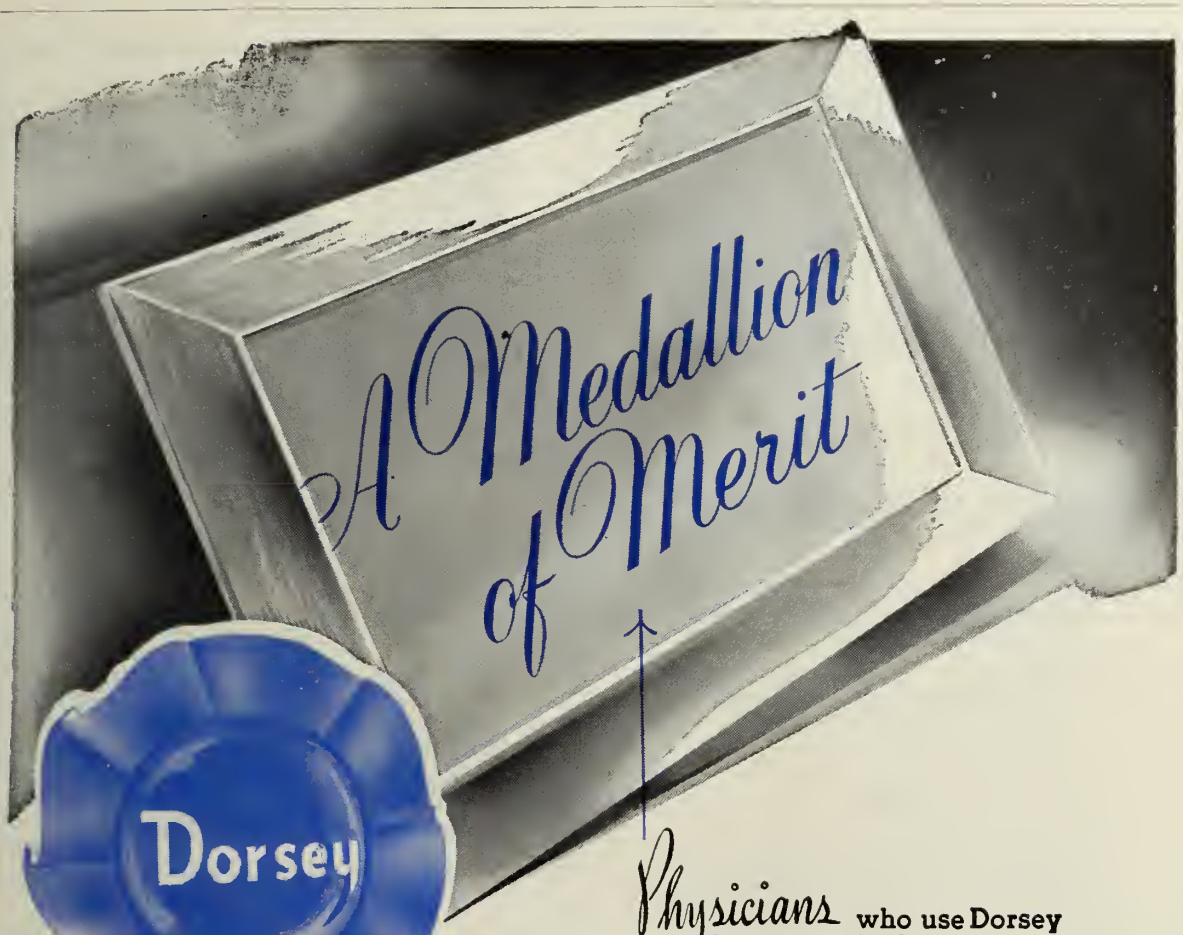
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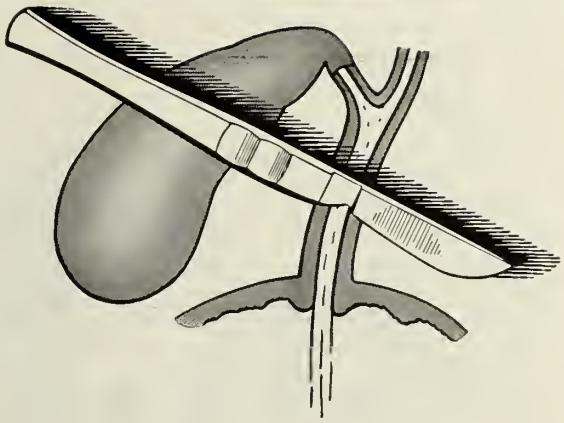
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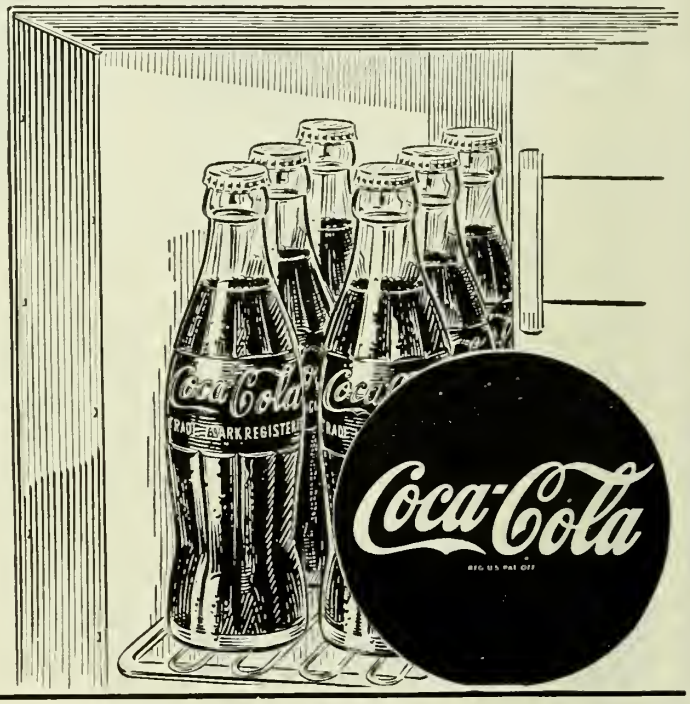
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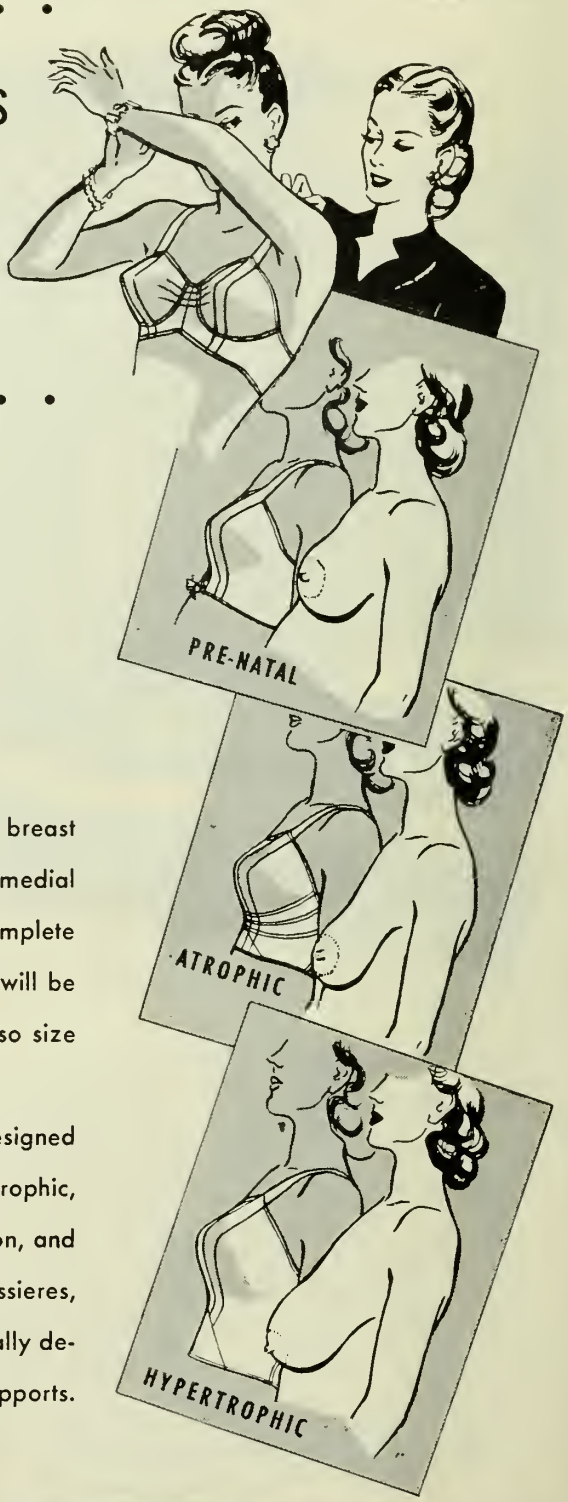
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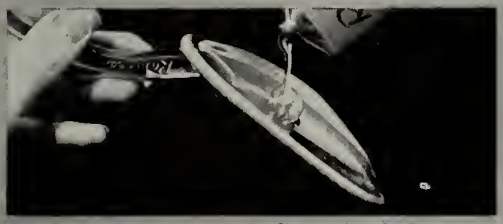
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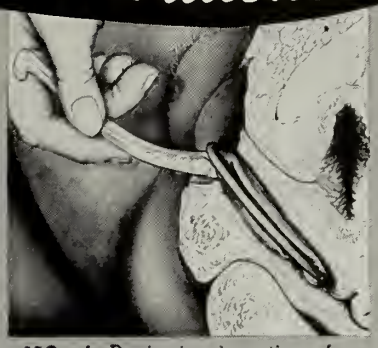
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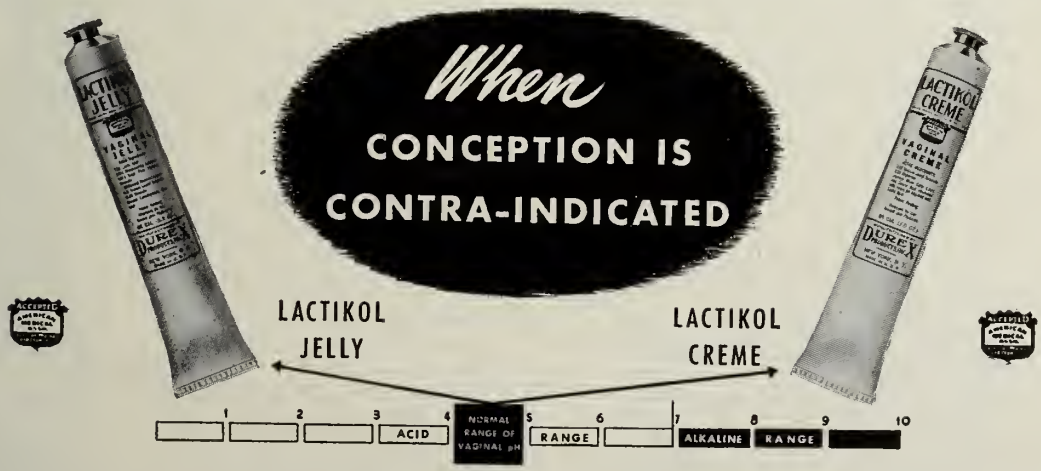
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Abbott Laboratories 371
Aloe, A. S. Company 376
American Meat Institute 320
Ames Company 368, 369
Ar-Ex Cosmetics, Inc. 380
Arlington Chemical Co. 316
Ayerst, McKenna & Harrison 323

Borden Company 351
Burroughs Wellcome & Company 339, 366

Camel Cigarettes 325
Camp, S. H. & Company 372
Ciba Pharmaceutical Products, Inc. ..... Insert
Coca-Cola Company 370
Commercial Solvents Corporation 322
Cook County Graduate School of Medicine 382

Denver Chemical Mfg. Company 364
Duncan Laboratories 340
Durex Products, Inc. 381

Emerson, J. H. & Co. 381

Faith Hospital 378

General Electric X-ray Corporation 365
Glenwood Sanatorium 376
Gradwohl School of Laboratory Technique 368

Hamilton-Schmidt Surgical Co. 380
Hanger, J. E., Inc. 368
Harrower Laboratory 343
Holland-Rantos Co. 324
Hynson, Westcott & Dunning, Inc. 383

Isle, W. E., Co. 381

Lilly, Eli & Co. ..... Insert
Lov-e Brassiere Co. 374
Luzier's Inc. 362

M & R Dietetic Laboratories, Inc. 373
Major Clinic Association 317
Mead Johnson & Co. 384
Medical Protective Co. 328
Milwaukee Sanitarium 360
Miscellaneous Announcements 382
Mosby, C. V., Company 354
Mullen Ambulance Co. 378

National Pathological Laboratory 369
Nestle's Milk Products 346
Norbury Sanatorium 378
North Shore Health Resort 370

Parke Davis & Company 314, 315, 349
Philip Morris & Co. 319
Physicians Casualty Association 369
Pogue, Mary E., School 378
Producers Creamery Company 383

Quincy X-ray and Radium Laboratories 380

Ralph Sanitarium 326
Rare Chemicals, Inc. 352
Robinson Clinic 381

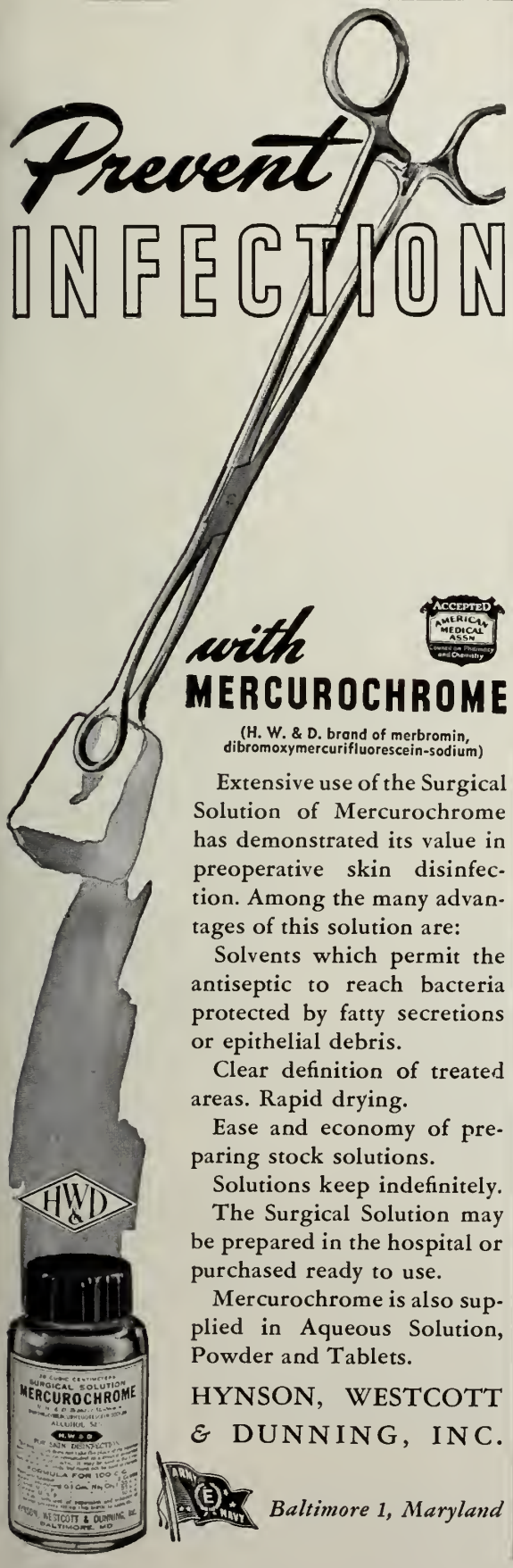
Schenley Laboratories 357
Schering Corporation 361
Schmid, Julius, Inc. 375
Searle, G. D. & Company 337
Smith-Dorsey Company 367
Smith, Kline & French Laboratories 345
Spencer, Inc. 379
Squibb, E. R. & Sons 321
Stokes Sanitarium 381

United Rexall Drug Co. 377
Upjohn Co. 358
U. S. Brewers Foundation, Inc. 379

Wallace Sanitarium 380
Winthrop Chemical Co. 363
Worrell, Dorothy 381
Wyeth, Inc. 327

Zemmer Company 380

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Joint Tasks of Law and Medicine

A Survey of the Laws of Missouri Relating to the Practice of Medicine

Legal Considerations of Blood Alcohol Analysis

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Legal Considerations Incident to the Performance of Autopsies by Coroners and Pathologists in Missouri

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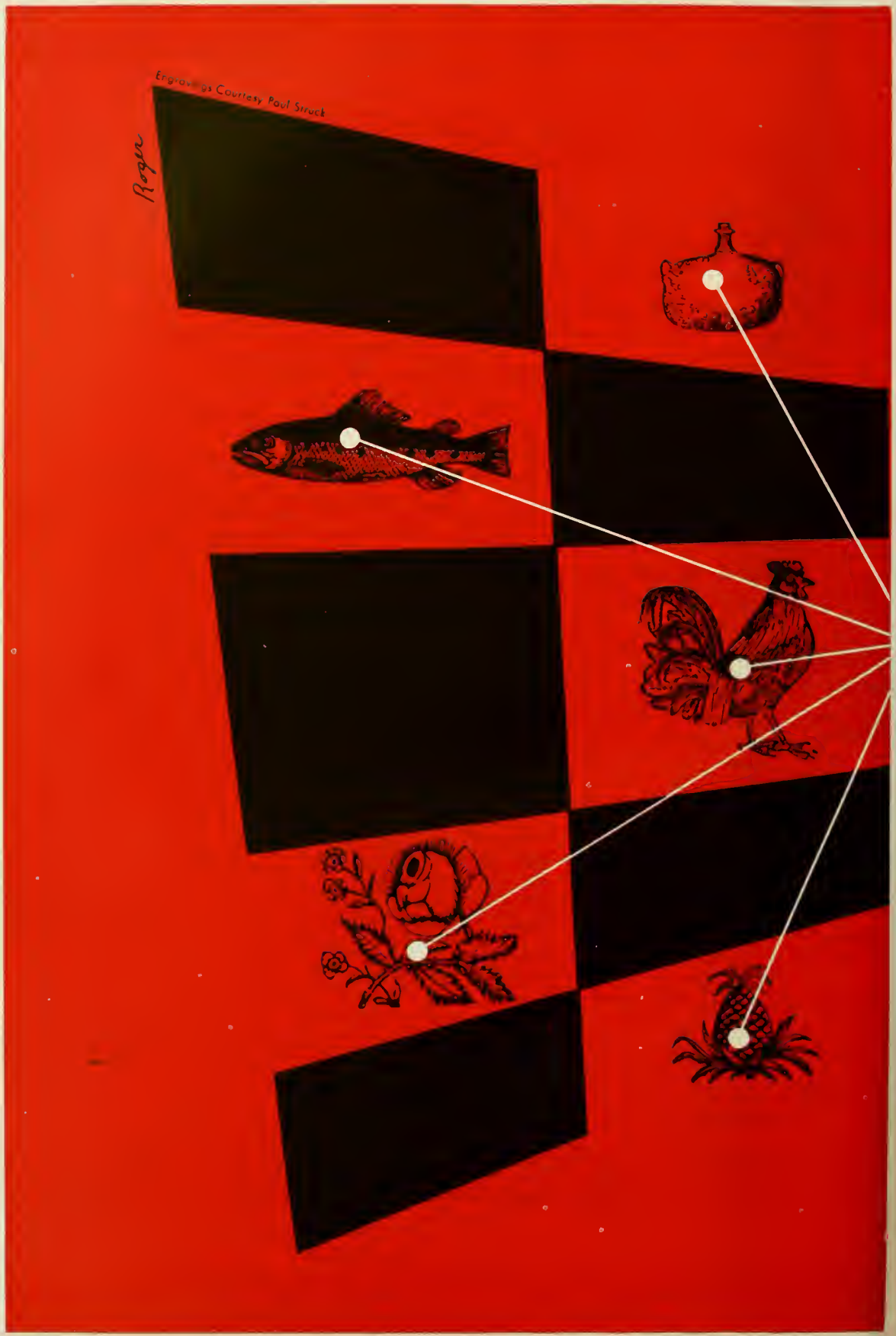
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(Contents Index Page 389)


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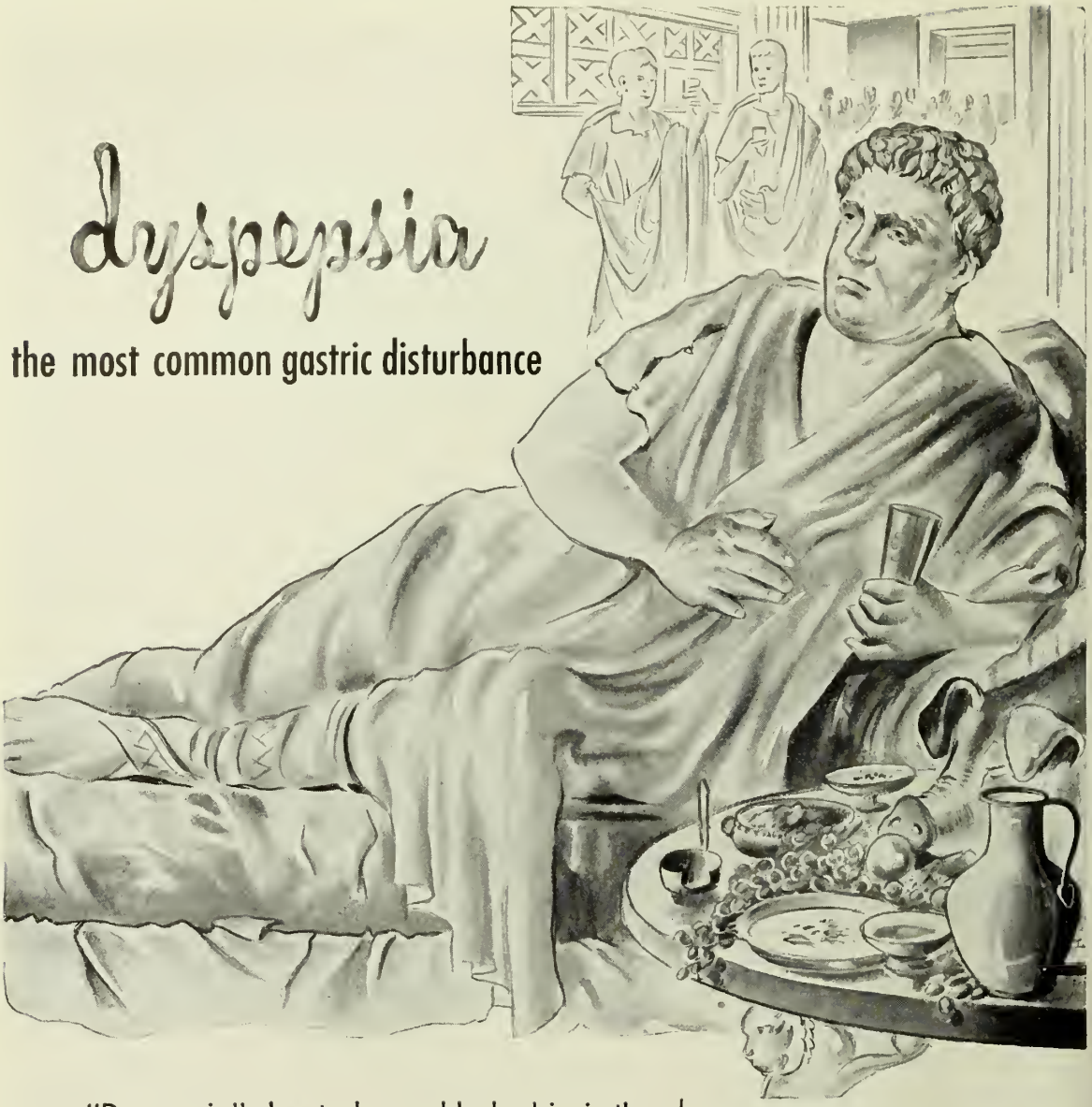
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CONTENTS

Symposium on Medicolegal Problems—

Joint Tasks of Law and Medicine. Hubert Winston Smith, LL.B., M.D., Urbana, Ill. 403

A Survey of the Laws of Missouri Relating to the Practice of Medicine. Herbert S. Breyfogle, M.D., and Arnold J. Willmann, LL.B., St. Louis 404

Legal Considerations of Blood Alcohol Analysis. Charles E. Cullen, LL.B., St. Louis..... 410

Coroner Proceedings in Relation to Workmen's Compensation Hearings. Courtney S. Goodman, LL.B., St. Louis..... 413

Legal Considerations Incident to the Performance of Autopsies by Coroners and Pathologists in Missouri. Stewart D. Flannagan, LL.B., St. Louis 418

Medicolegal Aspects of the Sale and Use of Barbiturates. Roy S. Pruitt, St. Louis..... 419

Medicolegal Problems in Distinquishing Accident From Suicide With Special Reference to Missouri Cases. Herbert S. Breyfogle, M.D., and Orville Richardson, J.D., St. Louis..... 423

Abstracts and Digests—

Tuberculosis Abstracts 430

Book Reviews 432, 438, 441

Editorials—

Robert Mueller, M.D., President-Elect..... 433

Physicians Locating in Rural Communities..... 434

Need for Nurses..... 434

News Notes 436

Society Proceedings 437

Woman's Auxiliary 440

Organization Activities 440

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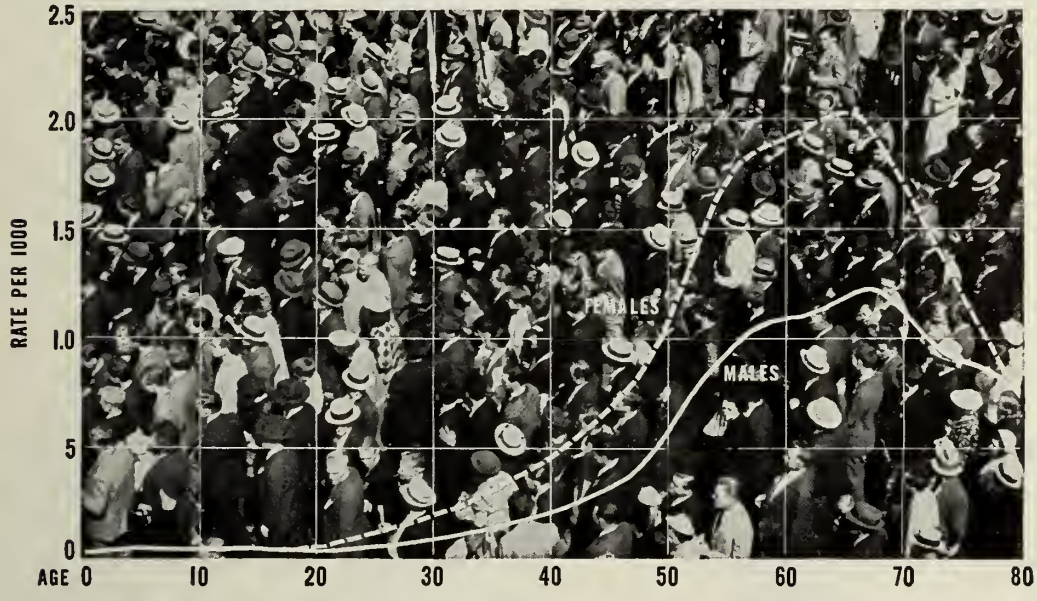


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1. Spiegelman, M., and Marks, H. H.: Am. J. Pub. Health 36:26 (Jan.) 1946. 2. Statistical Bull., Met. Life Ins. Co. 27:6 (Feb.) 1946.

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1. Surg., Gynec. and Obst **74** 390 (Feb. 16) 1942.

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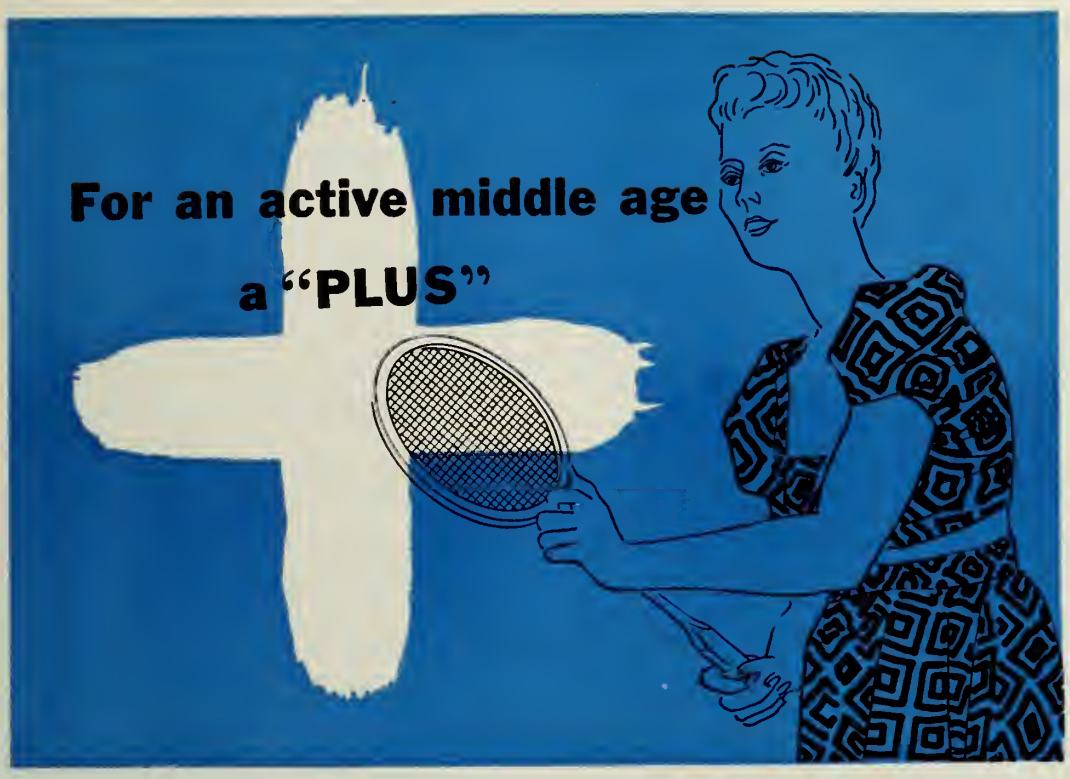
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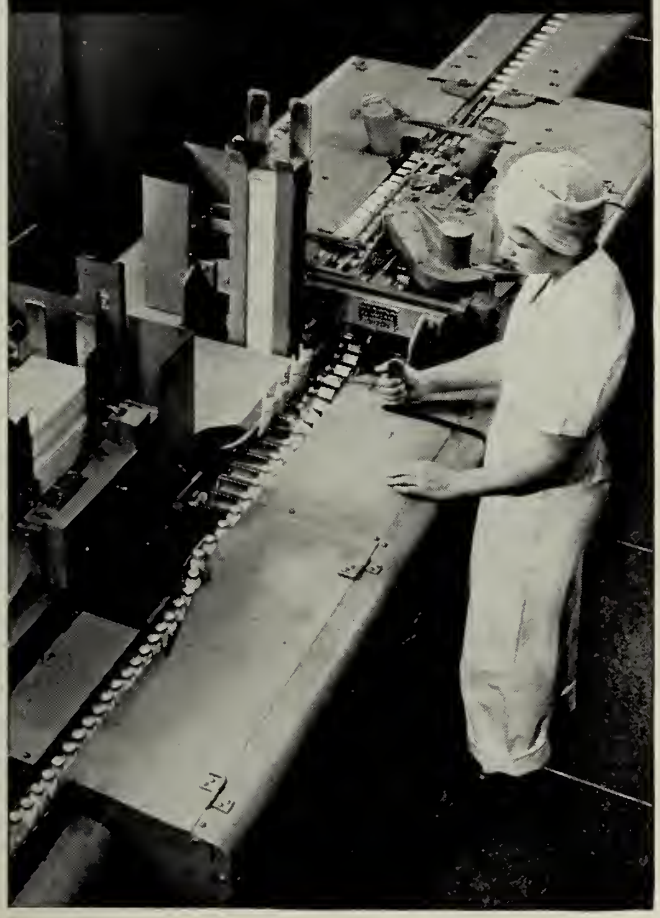
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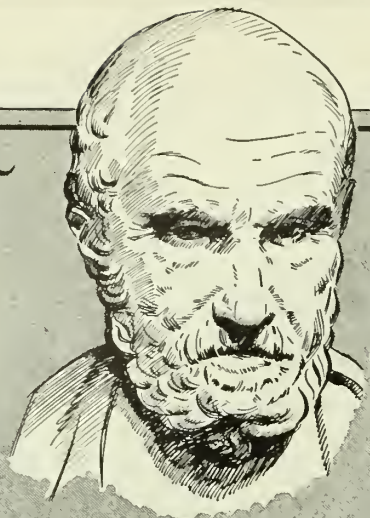
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SYMPOSIUM ON MEDICOLEGAL PROBLEMS

JOINT TASKS OF LAW AND MEDICINE

HUBERT WINSTON SMITH, LL.B., M.D.
URBANA, ILL.

In a trial in which a British physician had testified to the results of a blow to the plaintiff's abdomen, the learned judge interpolated this remark: "Gentlemen of the jury, the doctor means to say the plaintiff was hit in the stomach." Sometimes it is the physician whose performance is below par. John Hunter (1728-1793) failed to maintain his great reputation when giving evidence for the defense in the trial of Donellan (1781) for the poisoning of Sir Theodosius Boughton with cherry laurel water. That one of his medical attainments was able to render such little assistance in the administration of justice, made a deep impression on his contemporaries. There is some reason to think it prompted the efforts of Andrew Duncan which led to the founding of a chair of medical jurisprudence in Edinburgh University in 1807.

In times past the notion prevailed in some quarters that the relations of law and medicine are confined to contacts by necessity, mainly in respect to focal problems of expert testimony. This narrow conception of law-medicine interactions is rapidly giving way to a more exciting and fruitful inclination for joint study of common problems.

Modern medicine, in course of extending its reach, needs the benefit and protection of wise legal arrangements conceived to further the unimpeded progress of science into the far corners of the social scene. The mechanical and doctrinaire approach to law is rapidly yielding to the dynamic functional view of law as a social science. This implies that law must move with the times, turning with alacrity to other intellectual traditions for any relevant illumination and criticism to be so gained and for aid in improving the administration of justice. Indeed, the very end of law is justice and as the end of science is truth, the quest of one cannot be divorced from a search for the other.

It is scarcely necessary to point out that the professions of medicine and of law gain a part of their nobility and consequence from their preoccupation with personality problems. To integrate legal views of what constitutes the proper measure of damages in a personal injury action with the most trustworthy medical appraisal of the facts of a particular case leads to a social result one profession cannot attain alone. An attractive possibility exists for disciples of law and medicine to work together as social clinicians in studying such problems as criminal and antisocial behavior, and the various maladjustments of personality which lead to dissolution of the family. Often divorce is not due to any insurmountable incompatibility but to a temporary maladjustment or disorder of one spouse which might be remedied by psychiatric or medical treatment. Lawyer, psychologist and marriage counsellor all have a proper role in the salvage process. To look at these and other vexing law-medicine problems simultaneously through the eyes of law and medicine gives a sense of depth and contour one cannot get from monocular vision.

It has long been my conviction that the full future of law-medicine cooperation lies in the synthesis of legal and medical thought and action. It is a duet that is wanted rather than a solo. One can perceive everywhere a quickening interest of the two groups in making music together and in such a spirit of good fellowship that old discords can be eliminated. Therein is contained the augury of a true desire for intellectual adventuring and cooperation among the men of medicine and of law. I dare to think that much personal pleasure will come from this commingling with very little of tedium. Dr. Herbert Breyfogle and Mr. Orville Richardson are to be congratulated upon fostering the

Professor of Legal Medicine, University of Illinois, Urbana, Ill.

Presented at the St. Louis County Hospital, Clayton, October 4, 5, 1946.

present series, representing at it does the participation of the professions in a program devoted to a variety of interesting medicolegal problems. For the Missouri physician additional interest and value accrues from the fact that participants have taken special note of Missouri law and practice in developing their presentations.

University of Illinois

A SURVEY OF THE LAWS OF MISSOURI RELATING TO THE PRACTICE OF MEDICINE

HERBERT S. BREYFOGLE, M.D.*
and
ARNOLD J. WILLMANN, LL.B.
ST. LOUIS

Recent attention by local, state and national medical societies in pending and future legislation relating to the practice of medicine indicates the growing interest of the profession in regulation by the state of many phases of medical endeavor. There is an evident need to extend this attention to a careful review of the statutes which already have been enacted, both in order to advise the physician of his responsibilities under the law and to emphasize whatever need there might be for revision, amendment or repeal.

Historical records show that in 1835 there were about 30 physicians in the City of St. Louis, then a metropolis of 16,649 inhabitants.[1] There are no available records showing the actual number of physicians in the state at that time. The total population of the state was about 250,000. No laws existed in that year relating to physicians, the practice of medicine or public health. By 1845 the legislature had enacted laws relating to intoxicated physicians, privileged communications and the procuring of abortions and exempted physicians from serving on juries. Few laws were passed concerning the practice of medicine until 1883 when the State Board of Health was created and laws were promulgated for examination, licensure and registration of physicians as well as for the registration of births and deaths. In 1901 the county boards of health were established. Under provisions of the Constitution of 1945[2] the Sixty-third General Assembly abolished in July, 1946, the State Board of Health and created a Department of Public Health and Welfare with a Division of Health replacing the former board.[3] Registration, examination and licensure of physicians were transferred at the same time to the State Board of Medical Examiners functioning under the Division of Registration and Examination in the Department of Education.[4]

We believe that the following represents a full review of all laws up to August, 1946, that relate to the practice of medicine and are now in force.

Physician Defined.—A physician is defined by Missouri law as a person authorized by law to practice medicine or to treat sick and injured human beings in this state and to use narcotic drugs in connection with such treatment.[5] After July, 1946, a physician using the prefix "Doctor" or "Dr." before his name on letterheads, business cards, advertisements, prescriptions, signs, public listings or any other means of display must affix to his name the letters or words which clearly designate the degree held or the type of practice in which the individual is engaged under threat of penalty or imprisonment or both.[6]

Practice of Medicine Defined.—Osteopathy and chiropractic are declared not to be the practice of medicine and surgery within the meaning of the law relating to medicine and surgery.[7] "The practice of medicine . . . may consist only of examination of a patient, diagnosing the cause of the trouble complained of, or, by one professing to be a physician seeing the patient at stated intervals and the indication and prescribing of remedies to be applied and the acceptance of pay for such services."[8]

"One is practicing medicine when he visits his patient, examines him, determines the nature of the disease, and prescribes the remedies he deems appropriate, and one professing to be able to ascertain by examination of his patient the cause of his trouble, and to indicate the proper treatment is practicing medicine."[9]

Privileged Communications.—A physician is incompetent to testify concerning any information which he may have acquired from any patient while attending him in a professional character when such information was necessary to enable him to prescribe for such patient as a physician or to do any act for him as a surgeon.[10]

The testimony of any physician who examines an employee is admissible in evidence in any proceedings for compensation under the Workmen's Compensation Law.[11]

Information communicated to a physician in an effort to procure unlawfully a narcotic drug or the administration of any such drug shall not be deemed a privileged communication.[12]

Examination and Certification of Physicians.—Persons desiring to practice medicine or surgery in Missouri are required to pass an examination covering anatomy, chemistry, physiology, therapeutics, obstetrics, gynecology, surgery, practice of medicine, bacteriology, medical jurisprudence, hygiene and other subjects designated by the State Board of Medical Examiners. In order to qualify for the examination the applicant must (1) provide a certificate of graduation from an accredited high school, (2) give satisfactory evidence of having completed a premedical education consisting of a minimum of 60 semester hours of college credit in acceptable subjects from a reputabte college or university approved by the board, (3) offer satisfactory evidence of attending at least four terms of thirty-two weeks of actual instruction in each term including two years of experience in opera-

From the Department of Pathology, Washington University School of Medicine, the Medicolegal Department of St. Louis County and the St. Louis County Coroner's Office.
*Since January, 1947, Chief Medical Examiner, State of Virginia, Richmond.

tive and hospital work, (4) furnish a diploma from some reputable medical college, (5) submit evidence of good moral character, (6) pay a fee of $15. The applicant must attain an average grade of 75 per cent of all subjects and may not fall below 50 per cent in any one subject. Applications for the examination must be made in writing thirty days before a date designated for the examination by the State Board of Medical Examiners. A certificate of the National Board of Medical Examiners may be accepted by the State Board of Medical Examiners in lieu of the written examination.[13]

Certification by Reciprocity.—The State Board of Medical Examiners may under its own regulations admit to practice in Missouri without examination legally qualified practitioners of medicine holding certificates to practice medicine from any state or territory of the United States and the District of Columbia with educational requirements equal to those of the State of Missouri. A fee of $50 is required of the applicant.[14]

Registration.—The applicant who qualifies and passes the examination is issued a license to practice medicine and surgery by the State Board of Medical Examiners and is required to have such license recorded by the county clerk in the county in which he resides. The fee authorized by law for registering the license is $1.00.[15]

Each physician is required to register his name, address and occupation with the local registrar of vital statistics. No fee is charged for such registration.[16]

Physicians are required to apply biennially to the State Board of Medical Examiners for a certificate of registration. The application shall state (1) the full name of the applicant, (2) the office address, (3) the residence address, (4) the date and number of the license issued to the applicant by the State Board of Medical Examiners. The biennial certificate is required to be displayed by the person to whom it is issued.[17]

Refusal to License and Revocation of Licenses.—The State Board of Medical Examiners after due notice and hearing may refuse to license the applicant and may revoke the license of individuals of bad moral character or those guilty of unprofessional or dishonorable conduct (habitual drunkeness, drug habit or excessive use of narcotics, producing criminal abortion or soliciting patronage by agents). Licenses granted upon the basis of false and fraudulent statements may be revoked.[18]

Failure to Qualify for Certification.—An applicant who fails to pass the examination given by the State Board of Medical Examiners may be reexamined at any meeting of the board within twelve months without additional charge.[19]

Physicians Commissioned by the Army, Navy and United States Public Health Service.—Laws governing the examination, certification and registration of physicians do not apply to commissioned surgeons of the Army, Navy and United States Public Health Service while in the performance of their official duties.[20]

Physicians in Border States Attending the Sick in Missouri.—Providing a physician licensed to practice medicine and surgery in a border state does not maintain an office or appointed place in Missouri and complies with the statutes of Missouri he may attend the sick in this state without being examined, certified and registered in this state.[21]

Gratuitous Service.—Gratuitous service to and treatment of the afflicted is not prohibited by law. Interns must be licensed in order to engage in medical practice in Missouri. There are no provisions for temporary grants of licenses to medical students serving as externs or clerks nor physisians employed as interns.[22]

Retired Physicians.—Retired physicians are required to notify the State Board of Medical Examiners of their retirement, and are exempted from the requirement to register biennially.[23]

Prescriptions, Dispensation and Administration of Narcotics.—A physician may prescribe, administer or dispense narcotic drugs in the course of his professional practice or cause narcotic drugs to be administered by a nurse or intern under his direction and supervision. The written prescription should bear (1) the full name, address, registry number[24] and signature of the physician, (2) the date the prescription was written, (3) the full name and address of the patient.[25]

Exemptions from Narcotic Drug Law.—Preparations containing in each fluid or avoirdupois ounce (1) not more than 2 grains of opium, (2) not more than ¼ grain of morphine or any of its salts, (3) not more than 1 grain of codeine or any of its salts and (4) not more than ⅛ grain of heroin or any of its salts are exempt from the requirements relating to prescribing, administering or dispensing of narcotic drugs. Also exempt: liniments, ointments and other preparations for external use only in which the narcotic drugs are in such combination that prevent their being readily extracted. Exempted preparations must contain an additional drug or drugs conferring medicinal qualities upon the preparation.[26]

Restrictions in the Use of Exempted Narcotic Drug Preparations.—Exempted narcotic drugs may not be prescribed, dispensed or administered in such quantity as to supply within forty-eight hours more than 4 grains of opium, ½ grain of morphine or any of its salts, 2 grains of codeine or any of its salts, ¼ grain of heroin or any of its salts unless in the judgment of the physician more is needed or required. Physicians may not prescribe, administer or dispense more than one exempted preparation within forty-eight consecutive hours.[27]

Records Required of Physicians Prescribing, Administering or Dispensing Narcotic Drugs.—Every physician authorized to administer or professionally use narcotic drugs shall keep a record of all such drugs administered, dispensed or professionally used by him otherwise than by prescription. Persons using small quantities of solutions or other preparations of narcotic drugs for local application shall keep a record of the quantity, character and potency of such solutions or other preparations

purchased or made up by him and of the dates when purchased and made up. No record is required of the amount of such a solution or other preparation applied to individual patients. The physician is not required to keep a record of narcotic drugs administered, dispensed or professionally used in the treatment of any one patient when the quantity does not exceed in forty-eight consecutive hours (a) 4 grains of opium, (b) ½ grain of morphine or any of its salts, (c) 2 grains of codeine or any of its salts, or (d) ¼ of a grain of heroin or any of its salts or (e) a quantity of any other narcotic drug or combination of narcotic drugs that does not exceed in pharmacologic potency any one of the drugs named above in the quantity stated.

The record when required should show (1) the date the drug was administered or dispensed, (2) the name and address of the person to whom or for whose use administered or dispensed, (3) the kind and quantity of the drugs. The keeping of the records required by or under the Federal Narcotic Laws constitutes compliance with this section.

In addition the record should show (1) a detailed list of narcotic drugs, lost, destroyed or stolen, if any, (2) the kind and quantity of such drugs, (3) the date of discovery of the loss, destruction or theft.[28]

Registration of Births.—Births must be registered by the attending physician with the local registrar of the district in which the birth occurs. The certificate of birth must be filed within ten days of the date of birth, unless a municipal ordinance requires filing at an earlier date. The physician is required to state in the certificate (1) the place of birth, (2) the full name of the child, (3) the sex of the child, (4) whether a plural birth and if so what type, (5) whether legitimate or illegitimate, (6)*the full name of the father, (7)* the residence of the father, (8)* the color or race of the father, (9)* the birthplace of the father, (10)* the age of the father, (11)* occupation of the father, (12) maiden name of the mother, (13) residence of the mother, (14) color or race of the mother, (15) birthplace of the mother, (16) age of the mother, (17) occupation of the mother, (18) number of the child of the mother and number of living children of the mother, (19) whether born at full-term, (20) the date and hour of birth; whether or not born alive or dead, (21) the signature of the attending physician.[29]

Registration of Stillbirths.—Stillbirths must be registered as births and also as deaths and the cause of death certified as "stillborn" by the attending physician. The death certificate should also state (1) the cause of the stillbirth, (2) whether a premature birth, (3) if premature, the period of uterine gestation in months.[30]

Treatment of Infant's Eyes at Time of Birth.—Every physician in attendance upon a newborn infant or its mother shall drop into the eyes of the infant immediately after delivery, a 1 per cent solution of silver nitrate. The physician must report in writing to the local board of health or county physician within forty-eight hours his compliance with this statute, stating the solution used.[31]

Reporting of Eye Inflammation in Infants.—Persons having charge of an infant which shows reddening, swelling, or discharge from one or both eyes within two weeks after birth shall report this fact to the local board of health, or county, city or town physician.[32]

Registration of Deaths.—The medical certificate of death must be completed and signed by the physician last in attendance specifying (1) the time in attendance, (2) the time he last saw the deceased alive, (3) the hour of the day at which the death occurred, (4) the cause of death including the primary and contributory causes and the duration of each, (5) if death is due to violence, whether probably accidental, suicidal or homicidal, and the nature of the violence.

When death occurs in a hospital, institution or away from home, the attending physician shall also state (1) where the disease was contracted, (2) the length of residance at the place of death, (3) the length of residence in the state, (4) the former or usual residence. The certificate must bear the signature and address of the physician.[33]

Reporting of Deaths to the Coroner.—Missouri statutes require only that the registrar of death refer to the coroner deaths probably caused by unlawful or suspicious means. No statutory provisions require physicians to report any death to the coroner. Missouri courts, however, hold that the physician has a duty to notify the coroner of a proper case.[34] *The physician in attendance at the time of death must sign the certificate of death regardless of the cause of death and irrespective of the holding of an inquest.*[35]

By law the coroner is required to conduct an inquest whenever a death results from "violence or casualty" which is understood to refer to any death from abortion, blunt impact (bruising, crushing, fracturing, lacerating), burning, choking, chopping, cutting, drowning, electrocution, explosion, exposure to cold or heat, hanging, neglect, poisoning (by solids, liquids, or gases) shooting, smothering, stabbing, starvation, strangulation and suffocation.[36] Physicians should report such deaths to the coroner if they were "in attendance."

Surgical and anesthetic deaths generally are not reportable to the coroner in Missouri.[37]

Missouri law and the courts are silent on the subject of deaths occurring within twenty-four hours after admission to a hospital. The coroner cannot hold an inquest on this basis alone. If the probable cause of death is "unknown" the attending physician is not relieved of the duty to complete the certificate of death.

Deaths without medical attendance are subject to inquiry by the county health department when the death is not due to violence or casualty.[38] In such cases the death certificate is completed by the health department. If the health department after inquiry finds that death "probably" resulted from "unlawful or suspicious means" it is referred to the

coroner for investigation and certification. It is the duty of the undertaker to report to the health department deaths without medical attendance.[39] "Medical attendance" has not been defined. A physician "in attendance" at the time of death must sign the certificate under threat of penalty by fine for refusal or failure to do so.[40]

Autopsies by Coroner-Physicians or by Physicians for Coroners.—The coroner has no statutory or constitutional power to order an autopsy held. The Missouri courts have held that the coroner has no right to order an autopsy except in connection with an inquest before a jury when the death has resulted from violence or casualty.[41] The county health departments have no authority to hold an autopsy in connection with a death without medical attendance required to be certified by them.

Registration of Births and Deaths.—All physicians are required to furnish such information as they possess regarding any birth or death upon demand by the State Registrar, in person, by mail, or through the local registrar.[42]

Reporting of Dangerous Diseases.—Physicians in attendance on a case of reportable disease shall report the same to the local health officer within six hours after seeing the case. The report shall state (1) the name, address, age and sex of the patient, (2) the name of the disease suspected, (3) the name and address of the employer in case of a disease within division D and (4) whether the diagnosis is provisional or final.[43]

DIVISION A

Diseases Communicable and Dangerous to Public Health

Actinomycosis
Acute Infectious Conjunctivitis
Anchylostomiasis
Anthrax
Chicken Pox
Cholera
Dengue
Diphtheria
Dysentery (amebic)
Dysentery (bacillary)
Encephalitis Lethargica (epidemic)
Favus
German Measles
Glanders
Influenza (epidemic)
Kerato conjunctivitis
Leprosy
Malaria
Measles
Meningococcus Meningitis
Mumps
Paratyphoid Fever
Plague
Pneumonia, Pneumococcal
Pneumonia, Primary Atypica
Poliomyelitis (acute anterior)
Psittacosis
Puerperal Infection
Rabies
Rocky Mountain Spotted Fever (tick fever)
Scarlet Fever
Septic Sore Throat
Smallpox
Tetanus
Trachoma
Trichinosis
Tuberculosis (pulmonary)
Tuberculosis (other than pulmonary)
Tularemia
Typhoid Fever
Typhus Fever
Undulant Fever
Whooping Cough
Yellow Fever

DIVISION B

Diseases Communicable and Dangerous to Public Health

Chancroid
Gonorrhea
Lymphopathia venereum
Granuloma inguinale
Syphilis

DIVISION C

Diseases Dangerous to Public Health

Beriberi
Botulism (food poisoning)
Pellagra
Scurvy

DIVISION D

Diseases Dangerous to Public Health

1. Occupational Dermatitis (Dermatoses)
2. Pneumonoconiosis
   Anthracosilicosis
   Asbestosis
   Silicosis
3. Poisonings
   Ammonia
   Arsenic
   Benzene (Benzol)
   Cadmium
   Carbon Disulfide
   Carbon Monoxide
   Carbon Tetrachloride
   Chlorine
   Chromium
   Cyanide
   Ethyl Dichloride
   Fluorine
   Hydrogen Sulphide
   Lead
   Manganese
   Mercury
   Methyl Alcohol
   Methyl Chloride
   Naphthalene, Chlorinated and Diphenyl
   Natural Gas
   Nitrobenzene
   Phenol
   Selenium
   Sulfur Dioxide
   Vanadium
   Zinc (Metal Fume Fever)

Every physician who makes a diagnosis in or treats a case of syphilis, gonorrhea, chancroid, lymphopathia venereum or granuloma inguinale shall report such case immediately to the local health officer stating (1) the name or initials, address, age, sex, color and occupation of the diseased person, (2) the date of onset of the disease and (3) the probable source of infection.[44]

Precautionary Measures in Dangerous Diseases.—It shall be the duty of the attending physician immediately upon discovering a case of communicable disease to order such isolation of the case and disinfection of discharges as are necessary.[45]

Reporting of Disease Among Employees.—Physicians who examine persons employed in connection with any process, manufacture or labor in which antimony, arsenic, brass, copper, lead, mercury, phosphorus, zinc, their alloys or salts or any poisonous chemicals, mineral acids, fumes, vapors, gases or other substances are generated or used, employed or handled by the employees in harmful quantities or under harmful conditions, or come in contact with in a harmful way are required to report such examination in triplicate to the Division of Health of the State Board of Public Health and Welfare within twenty-four hours, stating (1) if any disease or illness is found, (2) the name and address of the employee, (3) the nature of the disease, (4) the probable extent and duration of the disease, (5) the name and business of the employer, (6) the last place and length of employment.[46]

Premarital Examination.—Marriage licenses may not be issued unless (1) the applicant presents a report of a negative serologic test and a signed affidavit stating that the applicant to the best of his or her knowledge is free from syphilis, (2) the applicant, in the event of a positive serologic test, presents a certificate from a licensed physician stating that (a) the applicant, to the best of his knowledge and belief, after having made a thorough physical examination, is not infected with syphilis or (b) the applicant, although infected, is not in a stage of the disease wherein it is communicable to either the spouse or offspring (the physician's certificate must have attached to it a laboratory report of the test of syphilis), (3) the applicant presents a certificate of a licensed physician stating that one of the applicants is on his or her deathbed and unlikely to consummate the marriage and (4) the applicant is pregnant.[47]

The laboratory report of the negative blood test, the affidavit of the applicant and the physician's certificate of health with the attached laboratory

report shall be made not more than fifteen days before the issuance of the marriage license and shall be void after ten days from the date of issuance of the marriage license.

Any laboratory approved by the Division of Health of the State Board of Public Health and Welfare of Missouri or by a state board of health of another state or by the United States Public Health Service may perform the serologic test for this purpose.[48]

Abortion and Contraception.—If any person shall by printing or writing, or in any other way publish an account or description of any drug, medicine, instrument or apparatus for the purpose of preventing conception, procuring abortion, or miscarriage, or keep for sale or gratuitous distribution any secret drug, nostrum or medicine for the purpose of preventing conception, procuring abortion or miscarriage such person shall be guilty of a misdemeanor, and upon conviction be fined not more than $1,000 or be imprisoned in the county jail for more than six months or both.[49]

Any person with intent to procure or promote a miscarriage or abortion who advises, gives, sells or administers to a woman, whether pregnant or not, or procures or causes her to take any drug, medicine or article or uses upon her, or advises to or for her the use of any instrument or other method or device to produce a miscarriage or abortion shall be guilty of a felony. Should death result to the woman or of any quick child of the woman the person shall be guilty of manslaughter. A conviction for manslaughter in such cases may not be based on a dying declaration alone, unless corroborated as to the fact that an abortion or miscarriage has taken place.[50]

The attending physician is not disqualified as a witness in prosecutions made in connection with the death of a woman following an abortion or attempted abortion.[51]

Abortions performed or advised by licensed physicians in order to preserve the life of the mother or unborn child are excepted from the statute relating to abortion as a felony or manslaughter.[52]

Temporary Confinement of the Insane.—The probate court or any judge of a court of record, or any two justices of the peace may order the temporary restraint of any person, so far disordered in his mind by lunacy or otherwise as to endanger his own person or the person or property of others.[53]

Committment of Insane Persons.—Indigent persons adjudged insane by the county court after proper proceedings may be committed to state institutions for the care and treatment of the insane. The court is required to examine at least one reputable physician as a witness in determining the fact and such witness must provide a detailed history of the case stating (1) the cause of the insanity, (2) its duration, (3) the former treatment, (4) all particulars relating to the patient and the disease.[54]

Persons afflicted with any form of insanity may be admitted to a state hospital as pay patients upon written request providing the request is accompanied by the written statements of two qualified physicians under oath certifying the insanity of the person to be admitted.[55]

Guardians of Drunkards and Drug Addicts.—The probate court after a proper inquiry may appoint a guardian for persons so addicted to habitual drunkeness, or to the habitual use of cocaine, chloral, opium or morphine as to be incapable of managing their own affairs.[56]

Confinement of Drug Addicts.—Drug addicts are subject to involuntary confinement in the state hospitals for the insane after proper proceedings before the probate court.[57]

Admission of Persons to the Missouri State School.—Indigent feeble-minded and epileptic persons may be admitted to the Missouri State School upon proper proceedings before the county court or upon official application of any judge of a court of record. The condition of such persons must be verified by the affidavits of the petitioners, and two disinterested persons; the request must be accompanied by the opinion of two qualified physicians.[58]

Employment of Private Physicians by Relatives of Patients in State Institutions.—Guardians or relatives of persons committed to any eleemosynary institutions may, at their own expense, employ a licensed practitioner to administer treatments to such patients.[59]

Liability in Restraint of Insane Persons.—No regular practicing or licensed physician or surgeon shall be liable in damages for restraint of any insane person or persons of feeble or disordered mind by reason of having in good faith furnished care, treatment or attention to such person and while such person is under the care of such physician and surgeon.[60]

Limitations of Civil Actions Against Physicians, Surgeons, Roentgenologists, Hospital and Sanatoriums.—All actions for malpractice, error or mistake against physicians, surgeons, roentgenologists, hospitals and sanatoriums for damages shall be brought within two years from the date of the alleged act of neglect.[61]

PENALTIES

Neglect or Refusal to Complete Death Certificate When in Attendance at the Time of Death.—If any physician who was in medical attendance upon any deceased person at the time of death shall neglect or refuse to make out and deliver to the undertaker, sexton or other person in charge of the internment, removal or other disposition of the body upon request the medical certificate of the cause of death he shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than $5 nor more than $50.[62]

False Certificate of Death.—If any physician shall knowingly make a false certification of the cause of death he shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than $50 nor more than $200.[63]

Neglect or Refusal to File Birth Certificate.—Any physician in attendance upon a case of confinement

who shall neglect or refuse to file a proper certificate of birth shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than $5 nor more than $50.[64]

Violation of Narcotic Drug Act.—Any person violating any provision of the narcotic drug act shall be deemed guilty of a felony and upon conviction shall be punished, for the first offense, by imprisonment in the state penitentiary for a term of two years, or by imprisonment in the county jail for a term of not more than one year or by a fine of not more than $1,000 or by both fine and imprisonment and for any subsequent offense, by imprisonment in the state penitentiary for a term of not less than two years nor more than seven years, or by a fine of not more than $5,000 or less than $250.[65]

Fraudulent Credentials.—Any person who offers, as a means of obtaining an examination before the State Board of Medical Examiners, a diploma or certificate of graduation from a medical school or college without having first attended at least 80 per cent of four school years, each of not less than 32 weeks and having passed all subjects satisfactorily shall be guilty of a misdemeanor and punished by imprisonment in jail for a term of not less than three nor more than twelve months or by a fine of not less than $100 nor more than $1,000 or by both fine and imprisonment.[66]

Failure to Record License.—Any physician neglecting to record his license with the county clerk before entering practice shall be guilty of a misdemeanor and on conviction shall be fined not less than $50. For failure to record the license thirty days after such conviction the physician shall be liable to a fine of not less than $100.[67]

Practicing Medicine Without a License.—Practicing medicine without a license from the State Board of Medical Examiners and misrepresentation as a licensed practitioner is a misdemeanor punishable by a fine of not less than $50 nor more than $500 or by imprisonment in the county jail for not less than thirty days nor more than one year or by both fine and imprisonment for each and every offense.[68] Treating each patient is a separate offense.

Fraudulent Licenses.—For filing the license of another or a forged affidavit of identification the statutes provide for penalties under the crime of forgery in the second degree.[69]

Failure to Treat Eyes of Newborn.—Failure of a physician to treat the eyes of a newborn infant with a solution of 1 per cent silver nitrate or to report having done so shall be a misdemeanor punishable by a fine of not less than $10 nor more than $100 or by imprisonment not to exceed six months or by both fine and imprisonment.[70]

Intoxicated Physician.—If any physician while in a state of intoxication shall, without a design to effect death, administer any potion, drug or medicine, or do any other act to another person which shall produce the death of such other he shall be deemed guilty of manslaughter.[71]

Failure to Report Occupational Diseases.—Any physician who following a physical examination of an employee shall fail to report the finding of any disease or illness among persons employed in connection with any process, manufacture or labor in which antimony, arsenic, brass, copper, lead, mercury, phosphorus, zinc, their alloys or salts, or any poisonous chemicals, minerals, acids, fumes, vapors or other substances are generated or used, employed or handled by the employees in harmful quantities or under harmful conditions or come in contact with in a harmful way shall be deemed guilty of a misdemeanor and upon conviction fined not less than $50 and shall be committeed until such fine and costs are paid.[72]

Misrepresentation by Physician in Connection with Insurance Policies.—Any examining physician who shall make a false or fraudulent statement or misrepresentation in or with reference to any application for life or casualty insurance for the purpose of obtaining any money or benefit from any corporation, company or association shall be guilty of a misdemeanor and upon conviction punished by a fine of not less than $100 nor more than $500 or by imprisonment in the county jail for not less than thirty days nor more than one year or by both fine and imprisonment.[73]

Any person who shall make a false statement of any natural fact or thing in a sworn statement as to the death or disability of a certificate holder in any life or casualty insurance corporation company or association shall be guilty of perjury and prosecuted for the crime of perjury.[74]

Failure to Register Biennially.—Physicians who fail to register biennially after 1941 are subject to a fine of not more than $500 or imprisonment in the county jail for not more than six months or by both fine and imprisonment.[75]

Failure to Affix Degree to Name.—A physician using the prefix "Doctor" or "Dr." in connection with the use of his name on letterheads, signs, advertisements, or any public listing or other display without affixing the letters or word indicating the degree held or the type of practice in which the individual is engaged shall be guilty of a misdemeanor and upon conviction be punished by a fine of not more than $500 or imprisonment in the county jail for not more than one month or both.[76]

REFERENCES

1. St. Louis Globe-Democrat, Nov. 29, 1946, p. 1B.
2. Mo. Constitution of 1945, sec. 37, art. IV.
3. Laws, 1945, S. B. No. 349, Mo. R.S.A. (June) 1946, sec. 9759.
4. Laws, 1945, S.B. No. 448, sec. 1, Mo. R.S.A., (June) 1946, sec. 9982.
5. R.S. Mo., 1939, sec. 9832.
6. Laws, 1945. H.B. No. 206.
7. R.S.Mo., 1939, sec. 10042, 10051. The osteopathic act was first passed in 1897 (Laws, 1897, p. 206) and the chiropractic act in 1927 (Laws, 1927, p. 132). The Revised Statutes of 1889 and 1899 stated that any person who professes to be a physician and to prescribe for the sick and who appends the letters "M.D." to his name shall be regarded as practicing Medicine. (R.S.Mo., 1889, sec. 6879; R.S.Mo., 1899, sec. 8515) This statute was repealed in 1901 (Laws, 1901, p 201, sec. 11).
8. State vs. Davis, 194 Mo. 485, 92 S.W. 484 (1906).
9. State vs. Smith, 233 Mo. 242, 135 S.W. 465 (1910).
10. R.S.Mo., 1939, sec. 1895.
11. R.S.Mo., 1939, sec. 3701
12. R.S.Mo., 1939, sec. 9848.

13. Laws, 1945, S. B. No. 424, sec. 1, Mo. R.S.A. (June) 1946, sec. 9983.
14. *Ibid.*
15. Laws, 1945, S.B. No. 424, sec. 1, Mo. R.S.A., (June) 1946, sec. 9987.
16. R.S.Mo., 1939, sec. 9776.
17. Laws, 1945, S.B. No. 424, sec. 1, Mo. R.S.A., (June) 1946, sec. 9992.
18. Laws, 1945, S.B. No. 424, sec. 1, Mo. R.S.A., (June) 1946, sec. 9990.
19. Laws, 1945, S.B. No. 424, sec. 1, Mo. R.S.A., (June) 1946, sec. 9989.
20. Laws, 1945, S.B. No. 424, Mo. R.S.A. (June) 1946, sec. 9992.
21. *Ibid.*
22. Laws, 1945, S.B. No. 424, Mo. R.S.A., (June) 1946, sec. 9992; personal communication, R. M. James, secretary, State Board of Health, April 5, 1946. Limited registration of medical students and interns is permitted in some states. See Digest of Laws Pertaining to the Practice of Medicine in Massachusetts, Department of Legal Medicine, Harvard Medical School, Boston, Massachusetts.
23. Laws, 1945, S.B. No. 424, Mo. R.S.A., (June) 1946, sec. 9992.4.
24. The number assigned to each person registered under the Federal Narcotic Laws.
25. R.S.Mo., 1939, sec. 9837, 9838.
26. R.S.Mo., 1939, sec. 9839 The manufacture of heroin was prohibited in 1924. 21 U.S.C., sec. 173.
27. *Ibid.*
28. R.S.Mo., 1939, sec. 9840. See note 26 *supra.*
29. R.S.Mo., 1939, sec. 9771, 9772.
30. R.S.Mo., 1939, sec. 9765. Stillbirths are not defined.
31. R.S.Mo., 1939, sec. 9994.
32. R.S.Mo., 1939, sec. 9995.
33. R.S.Mo., 1939, sec. 9766.
34. O'Donnell v. Wells, 323 Mo. 1170, 21 S.W. (2d) 762 (1929).
35. R.S.Mo., 1939, sec. 9766, 978 ; O'Donnell v. Wells, 323 Mo. 1120, 21 S.W. (2d) 762 (1929); Gilpin v. Aetna Life Ins. Co., 234 Mo. A. 566, 132 S.W. (2d) 686 (1941); Raymond E. LaDriere, Judge of the Circuit Court, St. Louis County, address before the Annual Medico-legal Conference, St. Louis County, November 24, 1945 (unpublished).
36. R.S.Mo., 1939, sec. 13227, 13252.
37. On the basis that a death resulting unexpectedly from a wholly intentional act such as a surgical procedure or anaesthesia is not a death from accidental means. Caldwell v. Traveler's Ins. Co. 305 Mo. 619, 267 S.W. 907, 908, 921; Pope v. Business Men's Assur. Co., 236 Mo. A. 263, 131 S.W. (2d) 887; Aubuchon v. Met. Life Ins. Co., (C.C.A. 8, Mo.) 142 F. (2d) 20 (1944).
38. R.S.Mo., 1939, sec. 9767.
39. *Ibid.* In 1883 the statutes provided that deaths without medical attendance were to be reported to the country clerk "within 30 days" by the nearest of kin or the householder.
40. R.S.Mo., 1939, sec. 9782. The coroner may sign the death certificate only if the death was due to violence or casualty and no physician was in attendance. See Breyfogle, H.S., Laws of Missouri Relating to Inquests and Coroners, Mo. Law Rev. 10:34-64, 1945.
41. Patrick v. Employers Mut. Liability Ins. Co., 233 Mo. A. 251, 118 S.W. (2d) 116 (1938); Crenshaw v. O'Connell, 235 Mo. A. 1085, 150 S.W. (2d) 489 (1941); Breyfogle, H.S., Laws of Missouri Relating to Inquests and Coroners, Mo. Law Rev. 10:34-64, 1945.
42. R.S.Mo., 1939, sec. 9778.
43. R.S.Mo., 1939, sec. 9736; Laws, 1945, S.B. No. 349, sec. 14, Mo. R.S.A., (June) 1946, sec. 9759.14; Missouri Public Health Manual, Book IV, pp. 8, 9, 10, 13 (1946).
44. *Ibid.*
45. Missouri Public Health Manual, Book IV, sec. IV, p. 13 (1946).
46. R.S.Mo., 1939, sec. 10212, 10215. See note 3 *supra* and text.
47. Laws, 1943, sec. 3364 A. pp. 641-643.
48. See note 3 *supra* and text.
49. R.S.Mo., 1939, sec. 4664. Does not apply to standard medical books and teaching in regularly chartered medical colleges.
50. R.S.Mo., 1939, sec. 4385.
51. R.S.Mo., 1939, sec. 4079.
52. See note 50, *supra.*
53. R.S.Mo., 1939, sec. 497.
54. R.S.Mo., 1939, sec. 9338, 9339.
55. R.S.Mo., 1939, sec. 9323, 9325.
56. R.S.Mo., 1939, sec. 509, 510, 511.
57. R.S.Mo., 1939, sec. 511.
58. R.S.Mo., 1939, ,sec. 9392.
59. R.S.Mo., 1939, sec. 9302.
60. R.S.Mo., 1939, sec. 508.
61. R.S.Mo., 1939, sec. 1016.
62. R.S.Mo., 1939, sec. 9782.
63. *Ibid.*
64. *Ibid.*
65. R.S.Mo., 1939, sec. 9851.
66. R.S.Mo., 1939, sec. 9986.
67. Laws, 1945, S.B. No. 424, sec. 1, Mo. R.S.A., (June) 1946, sec. 9987.
68. Laws, 1945, S.B. No. 424, sec. 1, Mo. R.S.A., (June) 1946, sec. 9988.
69. *Ibid.*
70. Repealed, Laws, 1945, S.B. No. 434, sec. 1, Mo. R.S.A., (June) 1946, sec. 9997.
71. R.S.Mo., 1939, sec. 4387.
72. R.S.Mo., 1939, sec. 10215.
73. R.S.Mo., 1939, sec. 5864, 5884.
74. *Ibid.*
75. Laws, 1945, S.B. No. 424, Mo. R.S.A., (June) 1946, sec. 9992.6.
76. Laws, 1945, H.B. No. 206, sec. 3.

* If the child is illegitimate the information in items 6, 7, 8, 9, 10 and 11 is not required.

LEGAL CONSIDERATIONS OF BLOOD ALCOHOL ANALYSIS

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An examination of the cases in which the results of chemical tests for the presence of alcohol in the blood have been admitted as evidence discloses no tendency to reject them as incompetent evidence from the scientific standpoint.[1] Their acceptance by the medical profession and other scientists as scientifically determined facts leaves their admissibility as evidence in a trial before a court to depend on other factors. Whether they may be rejected in a trial involving intoxication depends on other legal concepts presented by basic constitutional rights and privileges.

The provisions of the Constitution of the United States relied upon to exclude evidence against one accused of crime are found in the Fourth, Fifth, and Sixth Amendments, and sometimes the Fourteenth Amendment comes into the picture.

The Fourth Amendment states, "The right of the people to be secure in their persons, houses, papers and effects against unreasonable searches and seizures shall not be violated. . . ."

The Fifth Amendment states, ". . . Nor shall he be compelled in any criminal case to be a witness against himself. . . ."

The Sixth Amendment states, "In all criminal prosecution, the accused shall enjoy the right to . . . be confronted with the witnesses against him."

The Fourteenth Amendment contains the restrictions on the power of the states to abridge the privileges and immunities of citizens of the United States, to deprive any person of life, liberty or property without due process of law, or to deny any person within its jurisdiction the equal protection of the laws.

Except where these provisions are limited to the Federal Government, they apply as well to the states, and the state constitutions usually contain similar provisions so that the protection of the privileges may be sought in the state courts as well as in Federal courts. Forty-six of the states have a state constitutional provision against compulsory self-incrimination, and New Jersey and Iowa have statutes to the same effect.

Long ago a serious dispute developed regarding what modes of self-incrimination were included in the prohibition of the constitution. One group of judges and scholars of the law, including Wigmore,

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foremost authority on the Law of Evidence, and Mr. Justice Holmes, took the position that the privilege existed only against compulsory testimonial evidence, i. e., written or oral testimony. The other group considers that the privilege extends beyond oral and written statements to exclude any compulsory use of the body of the accused. Mr. Justice Holmes, in deciding a case in which an accused had been compelled to try on a garment, ruled, "But the prohibition of compelling a man in a criminal court to be a witness against himself is a prohibition of the use of physical or moral compulsion to extort communications from him, not an exclusion of his body as evidence when it may be material. The objection in principle would forbid a jury to look at a prisoner and compare his features with a photograph."[2] The prevalence of the other view, that the privilege extends to the compulsory use of the body of the accused, presents the most serious obstacle to the broad use of the blood alcohol analysis tests, inasmuch as, in most jurisdictions they cannot be obtained and tendered in evidence if objected to by the the accused. If the accused voluntarily submits or is indifferent to the use of materials taken from his body for analysis and used as evidence, the privilege is waived.

Typical cases involving compulsory medical or chemical bodily tests, in which the evidence so obtained was inadmissible because procured in violation of the privilege against self-incrimination are Booker v. City of Cincinnati,[3] State v. Newcomb,[4] State v. Horton,[5] and State v. Matsinger.[6]

Typical cases in which the privilege was limited to testimonial utterances are State v. Small,[7] in which defendant claimed he had submitted only because he thought the law required it; State v. Cram,[8] in which the defendant was unconscious for two days during which the specimen was taken from him; Touchton v. State,[9] where the specimen was taken at the hospital without objection by the defendant.

Missouri is definitely on the side of the question that does not limit the privilege against self-incrimination to oral or written testimony. The Missouri Supreme Court has been zealous to protect the privilege against self-incrimination. It has said: "The immunity afforded a witness by constitutional provision protecting him from self-incrimination is broad enough to protect him against such incrimination before any tribunal, in any proceedings and extends to preliminary proceedings as well as final trial;"[10] "The constitutional provision that no person shall be compelled to testify against himself and the statute prohibiting reference to failure to testify, protect a defendant in a preliminary investigation of a case, as when he has been compelled to testify at a preliminary examination, a coroner's inquest, or before a grand jury, or was ignorant of his rights and was imposed upon. . . . No person shall be compelled to testify against himself in a criminal cause, nor shall any person be put again in jeopardy of life and liberty."[11] "The principle that no one can be compelled to testify against himself in a criminal cause will not be abandoned to subserve the exigencies of any particular prosecution. . . . The right of a witness to refuse to give self-incriminating evidence is a personal privilege which he may waive, and will be held to have waived if he voluntarily answers without objection."[12]

If the submission of the accused is voluntary, the privilege is waived and the evidence is admissible: use of shoe to fit tracks;[13] showing scars for identification;[14] permitting accused's head to be shaved;[15] voluntary communication to visiting physician.[16]

In cases like those just mentioned, the accused would be open to compulsory physical examination and tests in those states which limit the privilege against self-incrimination to oral or written expressions. Professor Fred E. Inbau, of the Scientific Crime Detection Laboratory of Northwestern University Law School has discussed such matters as the above, standing up for identification, giving samples of handwriting for comparison and the like, in an article, "What Can an Accused Be Compelled to Do?"[17]

None of the reports of cases appealed to the Supreme Court of Missouri from convictions under R. S. Mo. 1939, Sec. 8404(c) for driving while intoxicated, indicated any appeal on the point of tests made by means of blood alcohol analysis.[18]

Cases in which the protection of the Fourteenth Amendment, the denial of due process clause, has been raised to prevent the compulsory use of bodily examination or tests are not frequent. However in an Iowa case[19] involving compulsory medical examination, it was held that the accused came within the protection of that amendment.

Cases in which the Sixth Amendment, the right of confrontation, affects the admission of evidence present the problem of requiring the expert witness in person to present the evidence of the blood alcohol analysis. This takes the valuable time of the professional expert and is costly, but important. There are some exceptions to the requirement of confrontation which the courts have recognized, such as "dying declarations" and testimony given at a former trial when the witness is dead at the time of the second trial. Another exception to the "face to face" rule is that public records are competent evidence when of probative value respecting a fact in issue.[20] A Massachusetts case involved the admissibility of four certificates in the form prescribed by the Massachusetts statutes, signed by an analyst of the Department of Health, to prove the alcoholic contents of illicit liquor in question in the case. The court said: "The determination of the percentage of alcohol in liquor at a specified temperature is the ascertainment of a fact by well recognized scientific processes. The statute only makes the record evidence of the composition and quality of the liquors to which it relates" and admitted the certificates in evidence.

It would seem that if such an official report of an

analysis of liquor for alcoholic content, properly authenticated by an appointed public servant in the regular course of his duties, does not require him to be a witness of those facts in person, an effort should be made to have the alcohol analysis of blood performed by public official chemists and admitted on certificate in the same manner. It is only in matters requiring individual exercise of judgment that public officers are required to present the evidence they are responsible for in person.

It is a general rule of modern American evidence that the judge will take judicial notice of matters of science that are in general acceptance, but that there cannot be judicial cognizance of facts of science on which even men of prominence in that branch of learning differ.[21] The acceptance of blood alcohol analysis tests by the medical profession and other scientists should aid and impress the courts sufficiently to lessen the burden on the parties and attorneys in actions in which such tests are involved. The Junior Bar Conference of the American Bar Association has been interested in the improvement of traffic courts and traffic conditions and with the Section of Judicial Administration of that body, has participated in the distribution of a reprint of an article by Bernard M. Mamet, "Constitutionality of Compulsory Chemical Tests to Determine Alcoholic Intoxication."[22]

The Model Code of Evidence, prepared under the auspices of The American Law Institute by its Committee on Evidence and published in 1942, contains the following: Rule 205: No person has a privilege to refuse (a) to submit his body to examination for the purpose of discovering or recording his corporal features and other identifying characteristics, or physical or mental condition, or (b) to furnish or to permit the taking of samples of body fluids or substances for analysis. This code has not yet been adopted in any state.

Although the physician called to the scene of an automobile accident to secure a specimen for blood alcohol analysis may be obliged to render first aid to the accused, it does not follow that he is thereby rendered incompetent to testify to the authenticity of the sample and its analysis by reason of the physician-patient relation. The taking of the specimen would not appear to be an act necessary in the treatment of a patient.[23]

The use of blood alcohol analysis in civil cases has been uncommon, but a leading case demonstrates that it can be of value and is admissible as evidence. In a Wisconsin case,[24] the issue was whether by reason of intoxication, the insured was without the protection of the policy of insurance. The results of the tests were admitted by the court, but it was held that they went in as evidence, not entitled to any more weight than the evidence of other witnesses.

Four states have statutes authorizing the use of the blood alcohol tests, some of them based on the scientific percentage standards and making evidence of the test results, a prima-facie case for or against intoxication at the percentage indicated. They are:

New York: Thompson's Laws of New York, 1942, Cum. Supp., Sec. 70.5, page 1206.

Indiana: Burn's Revised Statutes, Annotated, 1933, (Rep., 1940) Sec. 47-2003(a).

Maine: Revised Statutes 1939, Chapter 88, amended 1944, Chapter 19, Sec. 121. (Has .07% as maximum in lower bracket.)

Oregon: Compiled Laws, Ann. 1943 Supp. Chapter 6, Sec. 115-118 a. (In counties of 200,000 or more population.)

The provision in the New York statute gives an idea of the structure of such a statute. After making driving while intoxicated a felony, the statute states: "Upon the trial of an action or proceeding arising out of the acts alleged to have been committed by any person arrested for operating a motor vehicle or motor cycle while in an intoxicated condition, the court may admit evidence of the amount of alcohol in the defendant's blood taken within two hours of the time of arrest, as shown by a medical or chemical analysis of his breath, blood, urine or saliva. For the purposes of this section (a) evidence that there was at the time, five-hundredths of one per centum or less by weight of alcohol in his blood, is prima-facie evidence that the defendant was not in an intoxicated condition; (b) evidence that there was at the time, more than five-hundredths of one per centum and less than fifteen-hundredths of one per centum by weight of alcohol in his blood is relevant evidence, but it is not to be given prima-facie effect in indicating whether or not the defendant was in an intoxicated condition; (c) evidence that there was at the time fifteen one hundredths of one per centum, or more by weight of alcohol in his blood may be admitted as prima-facie evidence that the defendant was in an intoxicated condition." Amendment, July 1, 1941.

The Maine statute, Chapter 19, Sec. 121, contains a provision that: "The failure of a person accused of this offence to have tests made to determine the weight of alcohol in his blood shall not be admissible in evidence against him." In contrast, an Ohio court, where there was no similar statute, allowed comment on the fact that the accused was requested to submit to a blood test and refused.[25] Such comment would not be permitted in Missouri.

There are four states with statutory authorization for the use of the analysis. Iowa, Ohio, and Wisconsin supreme courts have recognized them, and Dr. Harger says that the Indiana State Police have used his breath test for seven years.[26] The Report of the National Safety Council Committee on Tests for Intoxication in 1943, showed a wide use of chemical blood tests for intoxication by the city and state police departments of twenty-six states and fifty-five large cities. That report states, Part II, Page 6:

"Practically every court will admit evidence obtained through chemical tests for intoxication if the following procedures are followed:

"1. Specimens are obtained with the knowledge and consent of the accused person.

"2. Specimens are taken according to accepted technics by qualified persons in the presence of witnesses.

"3. Specimens are preserved, sealed, labeled, transported, and stored properly, with care taken to record all facts so that there will be no question of identification and tampering.

"4. Specimens are analyzed properly by a qualified *chemist, using acceptable chemical methods.*

"5. All witnesses are available for testifying in court, including a physician or other qualified person who can test results in terms of intoxication.

"6. The prosecutor is informed of the procedures used and plans his questioning to bring out the evidence properly."

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CORONER PROCEEDINGS IN RELATION TO WORKMEN'S COMPENSATION HEARINGS

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Missouri Workmen's Compensation Law.—The purpose of the Missouri Workmen's Compensation Law is to ameliorate, in the interest of the workman and the public, losses sustained by the workman and his dependents from accidental injuries received or occupational diseases contracted in proper work, irrespective of negligence.[1] The law is not cumulative to, or supplemental of, the common law, but wholly substitutional,[2] and constitutes a complete code covering the whole field of compensation for injuries and deaths arising out of and in the course of the employment.[3]

Whether there has been an accident within the meaning of the law and whether it arose both "out of" and "in the course of" the employment, as the statute requires,[4] are questions that frequently cause the Commission and the courts considerable difficulty and concern. The determination of these questions depends upon the particular facts in each case and not upon any prescribed formula.[5] In the case of an occupational disease, the facts must show that the disease was contracted in the usual and ordinary course of events which, from the common experience of humanity, is known to be incidental and peculiar to a particular employment.[6]

In regard to the nature of compensation hearings and the application of the law, the appellate courts of this state have established over a period of time certain rules by which these hearings are governed. In the main, they provide that the finding of the Compensation Commission has the force and effect of a verdict of a jury and should not be disturbed if there is any substantial evidence to support it. Furthermore, the weight and credibility of testimony is a matter for the determination of the Commission.[7] In addition, a statute provides that all of the provisions of the Act shall be liberally construed;[8] and it has been repeatedly held in construing this statute that any doubt respecting the right to compensation must be resolved in favor of the employee or his dependents.[9] However, this does not mean that flimsy evidence of a highly speculative or conjectural nature, medical or otherwise, or incompetent evidence, can be used to support an award; nor does it mean that a claimant can be lacking in his proof of all the essential elements of his claim.[10] Moreover, the rules of evidence as they should be are rather closely followed by both the commissioners and the referees. In all other respects the hearings are informal and summary.

The administration and operation of the Compensation Law presents many serious and vexing problems of both law and medicine and this is especially true of death claims. In those cases it is often difficult to prove an accident much less the connecting cause of death. To prove both and to get at the real facts, facts which have probative value and would be recognized as competent evidence, frequently taxes the ingenuity of counsel who is charged with the duty of properly presenting his client's case. The facts surrounding the accident, once obtained, must be sifted, weighed and analyzed, and then correlated, if possible, with a sound medical theory to show a causal connection between accident and death.

Coroner Proceedings.—The importance of the coroner's office in dealing with the subject was recognized when the legislature wrote into the Compensation Law certain specific provisions which were intended to aid in the discovery and presen-

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tation of facts necessary to the establishment of a compensable death. The statute[11] provides: "Certified copies of the proceedings before any coroner holding an inquest over the body of any employee receiving an injury in the course of his employment resulting in death, shall be admissible in evidence in any proceedings for compensation under this chapter, and it shall be the duty of the coroner to give notice of such inquest to the employer and the dependents of the deceased employee, who shall have the right to cross-examine the witness. The Commission may in its discretion in extraordinary cases order a post mortem examination and for that purpose may also order a body exhumed."

First, it is observed that this statute purports to make certified copies of the coroner proceedings admissible in evidence in compensation hearings. There is some doubt, however, as to the legal propriety of this procedure since many matters of hearsay are contained in such a transcript, and if objection to its introduction was properly and timely made and the matter became an issue in the case, it is conceivable that an appellate court might eventually hold that it is inadmissible and should have been excluded. Of course if no objection is made at the time it is offered in evidence, then it will be considered by the Commission. To my knowledge this particular statute has never been interpreted by the courts. In one case, the point was raised, but the appellate court held that the objection to its introduction was too general and that the appellant had no right to complain of its admission.[12] In another case, the court refused to decide the question and held that even assuming the evidence to be improperly admitted, its admission would not justify the setting aside of the award which was otherwise supported by sufficient competent evidence as to which the coroner's verdict and proofs of death were merely cumulative.[13]

One next observes that the statute imposes a mandatory duty upon the coroner to give notice of such inquest to the employer and the dependents of the deceased employee, and that it gives them the right to cross-examine the witnesses.

This provision, I believe, is exceedingly important and one perhaps that is not generally known, and more often than not overlooked. Aside from the fact that the coroner would be derelict in the discharge of his office if he failed to follow this mandatory procedure, a strict compliance therewith coupled with a full spirit of cooperation would be of inestimable value to both industry and the dependents of deceased workmen. Where an inquest arising out of an industrial accident is held the parties should be notified promptly and given every opportunity to participate in the proceedings. It obviously was the intention of the legislature to put the coroner's office at the disposal of all parties who might later become involved in a compensation death case so that the true facts attending the death might be discovered. A close adherence to this law by the coroner will go a long way toward attaining this desired purpose. Naturally at that time the facts are fresh in the minds of the witnesses and the witnesses are readily and easily available. The time element is always an important factor in litigation. After great intervals elapse witnesses often disappear and the minds of those who are available are dimmed by the passing of time. Furthermore, a compliance with the statute requiring notice to the parties would perhaps answer any objection to the admission in evidence of the coroner proceedings at the compensation hearing on the ground of hearsay or that the proceedings were *ex parte*. It is apparent, therefore, that the coroner can perform a distinct public service in following both the letter and the spirit of the statute.

Autopsies.—It is next noted that this same statute clothes the Commission with authority in "extraordinary cases" to "order a postmortem examination and for that purpose may also order a body exhumed." The fact that the statute restricts the authority given to "extraordinary cases" clearly indicates that it was not to be freely exercised but to the contrary its exercise was intended to be the exception and not the rule. It is my information that since the Missouri Commission was created rarely, if ever, has this prerogative been used. Irrespective of the restrictive provision of the statute, the reluctance of the Commission to order an autopsy or to exhume a body is understandable on practical grounds alone. On those occasions on which the question was presented, the Commission frequently was successful in getting the parties to agree to an autopsy. In other instances, the request was denied because it was determined that the request was not a reasonable one, and at the time made the body had already been interred.

An interesting case in which no order authorizing an autopsy was obtained from the Commission, but in which the compensation insurance carrier acting through its local physician and a pathologist summoned to perform the autopsy and with the aid of the county coroner who lent the weight of his office to the proceedings, resulted disastrously for the insurance company.[14]

This is the only case in Missouri which has considered or discussed the compensation statute relative to postmortem examinations. What would be an "extraordinary case" as contemplated by the statute could be open to serious dispute in almost every instance; and it is clear therefore why the Commission and insurance companies and employers are not disposed to enter upon such precarious and uncertain grounds. The general rule in most states seems to be that when the matter is discretionary with the compensation board an autopsy will not be ordered unless there is a strong showing that it is necessary and justice requires it.[15]

Medical Proof in Workmen's Compensation Cases.—The importance of an accurate diagnosis wherever possible cannot be overemphasized. Of

equal importance is a proper and complete recording of the medical opinion as to the exact cause of death. These records invariably are brought into the hearing, and often the coroner or the coroner's physician is called by one side or the other to testify. If these duties are not properly pursued and carried out with particularity a miscarriage of justice easily could result. In addition, the coroner or his physician might later find himself in an embarrassing position when called upon to explain or to account for his acts.

Illustrative of the importance of these matters is a compensation case decided by the Supreme Court of Missouri in which the main issue involved was purely medical.[16] In that case the facts were these: The deceased in February, 1929, suffered a hernia while employed. After a successful operation he returned to work, but on May 6, 1930, while in the course of his employment, there was a recurrence of the hernia. Following operation he contracted a cold, pleurisy in the right side, phlebitis in the left leg, headaches and a temperature. On two occasions as he walked about the room in the hospital his right side became numb, right leg weakened, and he fell. On April 15, 1931, he returned to work for fifteen days. In the meantime he lost interest in his personal appearance and family, constantly suffered pain on the left side of his head, could not use his right hand, and in walking dragged his right foot. On May 15, 1931, he entered a hospital in St. Louis. At this time he spoke with difficulty, could not write, and continued to suffer pain in his head. He grew worse and died on May 14, 1932. On May 19, 1932, an autopsy was performed by a pathologist in the presence of a doctor who attended at the request of the attorney for the dependents.

After reviewing these facts, the court then said: "All (the physicians) agreed that the cause of death was softening of the brain which condition existed for two weeks before death; that it was caused by thrombosis in the branch of the middle cerebral artery; that the thrombosis was caused by arteriosclerosis, and that the hernia did not directly cause death. The physicians called by respondents (claimants) testified that the last operation for hernia caused the cold, pleurisy and phlebitis; that the pleurisy or phlebitis, or both, either caused or aggravated the condition of arteriosclerosis, which in turn caused the thrombosis. On the contrary, the physicians called by the appellants (employer and insurer) testified that neither the hernia, cold, pleurisy, nor phlebitis in any manner caused or aggravated said condition. They also testified that the pain, dizziness, and suffering experienced by the deceased after the last operation were due to angio-spasms."

The court thereupon considered the attack made by the claimants upon the testimony of the pathologist who had submitted two conflicting reports of the autopsy. In this connection the court said: "The first report disclosed no arteriosclerosis in the region of the cerebral artery. In explanation, he testified that after submitting the first report he continued the examination with the aid of a microscope, which disclosed arteriosclerosis. He submitted specimens to other physicians, who made microscopic examinations, and all agreed that the microscope disclosed arteriosclerosis in said region. Furthermore, his submission of two reports on the autopsy was for the consideration of the Commission in weighing his testimony. In this connection it may be stated that the autopsy showed a cancerous colon and a diseased kidney."

The court finally held that the ruling of the Commission was supported by substantial evidence and accordingly its award denying compensation was affirmed. This case well illustrates the necessity for a careful, thorough and painstaking postmortem examination so that all doubts might possibly be eliminated. In this case the Commission apparently preferred to believe the pathologist, whose testimony had been assailed, in spite of the fact that he was called upon to give an explanation. On the other hand, the Commission could just as well have disbelieved him, and had they done so their finding might have been entirely different. It should go without saying that unequivocal testimony that leaves no room for doubt is certainly more convincing and appealing to any court or board than the type that tends only to confuse and confound the issues.

A good example as to how confusing the issue of cause of death can become for lack of proper medical investigation, is a recent case that was considered by the St. Louis Court of Appeals, wherein the court after laboring long and arduously over the testimony of the medical experts, affirmed the finding and award of the Compensation Commission in favor of the dependents.[17]

In that case the employee was standing on one of the employer's wagons assisting in the unloading of lumber when he fell about three feet to the hard frozen ground, and died immediately thereafter. The medical question involved was whether death was due to a broken neck as a result of the fall, or whether it was due to a coronary occlusion. There was lay testimony submitted on behalf of the dependents to the effect that he was well and hearty when he went to work on the morning of the occurrence, and that his prior health had always been good and that he had never complained about his heart or about any pains in his chest. The employer and insurer submitted testimony to the effect that he had not been feeling well on that particular morning, and that on previous occasions he had complained of his chest and heart.

As to the medical testimony, which was the principal factor in the case, the court was confronted largely with purely opinion evidence based on various hypotheses.

The coroner, a chiropractor, was called as a witness for claimants and testified that on the day of

the occurrence he was called to the premises of the employer and upon his arrival there saw the dead body of the employee; that after the body was removed to the funeral home and after the clothes had been removed from the body he examined the decedent's neck and found that it was broken; that no autopsy was performed and there was no examination of any internal organs of the body.

The coroner further testified that "he had signed the death certificate as coroner wherein he gave the cause of death as coronary occlusion and also stated therein that the deceased had a broken neck; that in giving the cause of death he had to go by the testimony that was given to him and that he went by that testimony, and that it was his opinion that the deceased suffered a coronary occlusion and that when he went down and rolled off the wagon he broke his neck when he hit the ground. The witness testified that from his own examination he discovered a broken neck, but there was no other objective symptoms of illness or affliction that might have caused death. He also testified that the broken neck could have caused the death; that when he placed 'coronary occlusion' on the certificate of death as a cause of death he acted on testimony given to him by the witnesses, but that when he placed 'broken neck' on the certificate he acted on his own investigation; that he had no way of knowing professionally of prior existence of coronary occlusion." In this connection the witness was asked whether he could testify that coronary occlusion definitely and positively was the cause of death, and his answer was of course that he could not. When questioned further he was forced to admit that he could not say whether he died of a coronary occlusion or broken neck. He also testified that considering the testimony he had heard about the deceased's condition as to coronary occlusion, his working and living habits, his appetite and his weight and size, that a man in that condition could survive a coronary occlusion and could have a condition like that and still work; that he could have a condition like that and be alive when he fell from the wagon. The court then quoted part of the witnesses' testimony as follows:

"Q. Suppose you heard the testimony with regard to his working habits, his size and weight and so forth—you heard the testimony from numerous witnesses he had never been ill a day in his life and never complained of any heart trouble or pain —supposing that testimony is true and this man fell from the wagon, three feet from the ground, and broke his neck, and when you were called you found him dead, and your objective examination revealed a broken neck—what, in your opinion would be the cause of death?

"A. From a hypothetical case the broken neck would be the cause."

All of the coroner's testimony in this respect graphically illustrates what happens when essential facts that in all probability could have been uncovered at an autopsy by a competent pathologist, are wholly lacking. In their absence one is led into a labyrinth of confusion and uncertainty with all of its attendant speculation and conjecture. Without the aid of a competent medical man, it would seem that the investigation by the coroner would fall short of the purpose to be accomplished.

Again referring to this case, one finds other medical testimony of a highly unsatisfactory character. A doctor called by the employer and insurer testified that when he arrived at the premises of the employer he found the deceased lying on the ground; that there was no evidence of internal injury on the body; that there was a spot or two of blood on the nostrils; that he made an examination to determine whether the man was dead or alive; that he did not examine the neck; that he talked to several men there and that his diagnosis of the cause of death was a heart condition. On cross-examination the witness was asked if he based his diagnosis entirely upon statements made by the workmen there, and answered "That is the way we make most of our diagnoses." He also testified:

"Q. You did not make a thorough examination of the body?

"Q. You did not remove the clothing from his body? A. No, I did not.

"Q. I believe you testified the neck was not broken? A. There was no evidence of it.

"Q. But you did not make a close examination to ascertain that? A. No.

"Q. Can you, as a physician, definitely and positively state what caused the man's death, if you heard the testimony, if he slumped in the wagon and fell to the ground and suffered a broken neck and he was dead upon your arrival and you did not make an examination of the internal organs—you merely made the examination you testified you did. Can you definitely and positively state what caused the man's death?

"A. There are several different things that could have caused his death under the hypothetical question—just knowing that much, there are several things that could have caused it. A broken neck could have caused it—if it was broken."

He was then asked on re-direct examination:

"Q. It is your opinion this man died of heart trouble?

"A. That is my opinion."

Certainly there was no basis for this opinion in view of his admission on cross-examination that he did not make a thorough examination of the body and that several things could have caused the death. It is quite evident that this doctor's opinion was based on a most cursory and superficial examination, and it could not be expected that either the Commission or the court would be impressed by such highly speculative testimony.

Another doctor for the employer and insurer, used solely as an expert witness and who had no other connection with the case, on the basis of a

hypothetical question, gave as his opinion that the cause of death was heart disease, but stated there would be no definite way of telling in the absence of a postmortem examination.

The exact technical question of law that the court was called upon to decide was whether the death arose "out of" the employment. It was not disputed that it occurred "in the course of the employment." It was the contention of appellants that it did not arise "out of" the employment because, as they claimed, he was dead from coronary occlusion before he fell from the wagon to the ground.

The court found against appellants, holding there was substantial competent evidence in the record to sustain the award of the Commission. In reviewing the evidence, the court commented on the testimony of the coroner and pointed out that his testimony was "contradictory in that he said in his opinion coronary occlusion caused the death, and also said that in his opinion the broken neck would cause the death." The court further said: "However, it must be remembered that he explained that as to the coronary occlusion he based his opinion on the statement of other persons, whereas his statement as to the neck being broken was based on his own personal examination of the body. . . . The Commission members, as the triers of the facts, were free to reject or accept either one or the other, in whole or in part, according to their own judgment as to where the truth lay." The court also noted that all the doctors agreed that no one, in the absence of a postmortem examination, could state definitely that the deceased had suffered a coronary occlusion, and therefore concluded that the medical testimony with respect to coronary occlusion or heart failure as the cause of death was based largely upon conjecture. In this connection the court quoted from another case as follows: "the claimant's right of recovery ought not to be defeated upon a mere possibility or conjecture that his injury might have been received in some way unrelated to his employment."

The loose and indifferent manner in which the cause of death was inquired into in this case is patently obvious. In contrast, there are cases in which the proof is strong and convincing and outside the realm of speculation and in those instances the Commission and the courts have little difficulty in reaching the correct result. In demonstration of this there is a case in which the cause of death was a rupture of a heart vessel caused by an aneurysm. A postmortem examination was made, the aneurysm was found and its condition was such that it could have ruptured in the sleep of the deceased. In other words, the credible medical evidence all pointed to a diseased condition and convinced the commission that the deceased's death was due to natural causes and that he received no injury due to an accident.[18]

In another case[19] the deceased and a fellow employee had been loading sacks into a freight car when the deceased collapsed. He was taken to his home where he died two days later. It was held that the deceased sustained no accident under the law, the medical evidence showing that deceased had suffered from mitral insufficiency from the year preceding his death; that the heart was enlarged and thickened; that the doctor examined the deceased the day he was brought home from work and found him suffering from pleurisy, pericarditis and endocarditis. Here again was factual proof of a prior diseased condition.

Other cases along the same line could be cited but these should suffice to show the comparative quality of medical proof, and how the Commission and the courts are influenced by the opinions of the experts when considered in the light of the other facts in evidence. Ordinarily, any conflicting medical testimony is in the same category as any other evidence, and may be weighed and resolved and accepted or rejected either in whole or in part as the Commission in its sole judgment may determine.

It has been held that the Commission has the right to disregard the judgments of experts or the inferences of skilled witnesses, even when unanimous and uncontroverted, except when the matter is one for experts or skilled witnesses alone. In those exceptional cases, the Commission cannot properly be assumed to have, or be able to form, correct opinions of their own, and therefore the unanimous evidence of those qualified physicians stand as conclusive. Illustrative of this is a case[20] in which three physicians gave uncontradicted testimony that the employee died of bilateral lobar pneumonia which had reached an advanced stage prior to the injury which fractured the employee's rib. The court concluded that there was no substantial competent evidence in the record to support a finding by the Commission that the blow that fractured the rib was a contributing cause of the bilateral lobar pneumonia which caused the employee's death.

CONCLUSIONS

(1) In deaths occurring in the course of employment in Missouri the coroner is required by law to notify the employer and the dependents of the employee of the holding of an inquest.

(2) The Missouri Workmen's Compensation Commission has a discretionary power to order a postmortem examination but this is limited to "extraordinary cases." This prerogative has rarely, if ever, been used because of the probability of dispute on the question of what constitutes an "extraordinary case."

(3) Fundamental rules of law apply to medical evidence as well as to other forms of proof; speculation, theory, conjecture, remote causes and possibilities do not constitute good medical proof, and should be rejected in favor of accurate and carefully recorded facts collected and preserved by competent physicians. In applying the facts, the

opinion of the expert should be based on reasonable probabilities.

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7. See Mo. Digest, Vol. 29, Key Number Sec. 1939, under "Workmen's Compensation," for list of cases where these rules have been applied. (Since this paper was presented, it has been held that under Missouri's new Constitution and Administrative Practice Act, the courts can now pass upon the weight of the evidence, and no longer is the finding of the Commission similar to a verdict of a jury. Cf. Wood v. Wagner Electric Co., 197 S. W. (2) 647 (Sup. Ct.).
8. Sec. 3764, R. S. Mo., 1939.
9. Betz v. Telephone Co., 224 Mo. App. 1004, 24 S. W. (2d) 224; Hawles v. Orchards Co., 223 Mo. App. 793, 22 S. W. (2d) 839.
10. Conklin v. Public Service Co., 41 S. W. (2d) 608 (App.); Stone v. Pipe Co., 224 Mo. App. 319, 27 S. W. (2d) 549.
11. Sec. 3738 R. S. Mo. 1939, paragraphs (d) and (e).
12. Oswald v. Caradine Hat Co., 109 S. W. (2d) 893 (St. L. Ct. App.).
13. Williams v. Planters Realty Co., 160 S. W. (2d) 480 (St. L. Ct. App.).
14. Patrick v. Employers Mut. Liability Ins. Co., 118 S. W. (2d) 116.
15. 71 Corpus Juris, p. 1043, Sec. 815.
16. Jenneman v. Consolidated Underwriters, 340 Mo. 273, 100 S. W. (2d) 458.
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18. DeLille v. Holten-Seelye Co., 334 Mo. 464, 66 S. W. (2d) 834.
19. Meldrum v. Southard Feed & Mill Co., 229 Mo. App. 158, 74 S. W. (2d) 75.
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LEGAL CONSIDERATIONS INCIDENT TO THE PERFORMANCE OF AUTOPSIES BY CORONERS AND PATHOLOGISTS IN MISSOURI

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The performance of an autopsy by a coroner is accompanied by legal danger unless such an examination is conducted according to law. The coroner derives his power from the statutes of the state and must comply with the provisions of the law. A pathologist has no right to perform an autopsy unless authorized to do so by (1) those entitled to bury the body or (2) those authorized by law (such as a coroner or a Workmen's Compensation Commission). If a pathologist performs an autopsy at the direction of a coroner who acts illegally in ordering an autopsy held then the pathologist is equally guilty and is liable in damages.[1]

There are several Missouri statutes relating to postmortem examinations, one of which permits the Workmen's Compensation Commission "in extraordinary cases" to order such an examination.[2] The remaining three are to be found in the chapter on inquests and coroners.[3] Two of these statutes, however, concern only the payment of fees.[4] while the third relates in part to the payment of fees and in part to examinations permitted in conjunction with inquests held in deaths resulting from homicidal poisoning.[5]

No question relating to the authority of the coroners of Missouri to order an autopsy was raised until 1938 in the case of Patrick v. Employers Mutual Liability Insurance Company.[6] It was assumed generally that in Missouri the coroner possessed a judicial power with respect to autopsies. In this case Patrick was a fireman employed by a municipality. While attending a fire he collapsed and died. The municipality was insured by the defendant company under the Missouri Workmen's Compensation Act. The company physician with the assistance of the county coroner requested a pathologist to conduct an autopsy. No inquest was held and the Workmen's Compensation Commission issued no order authorizing such an examination. Patrick's widow entered a suit against the insurance company in which the pathologist, but not the coroner, was joined. During the trial the suit against the pathologist was dismissed. A verdict for actual and punitive damages against the company was returned and sustained on appeal, the court adopting the view that the coroner might order an autopsy only in conjunction with an inquest before a jury when death was supposed to have resulted from violence or casualty.

In this case the company was defended in part on the theory that an autopsy was necessary to the completing of the death certificate, there being no physician in attendance at the time of death. Missouri statutes, however, specifically provide (a) that if death occurs without medical attendance, it shall be the duty of the *undertaker* to notify the *registrar* and the registrar shall refer the case to the *local health officer* for immediate investigation and certification,[7] (b) that in death without medical attendance, if there is no local health officer, or if he is not a physician, the *registrar* is authorized to prepare the certificate from statements of relatives or other persons having adequate knowledge of the facts,[8] and (c) that in deaths without medical attendance, if the circumstances render it probable that death was caused by *unlawful* or *suspicious means,* the registrar shall refer the case to the *coroner* for investigation and certification.[9] In none of these provisions is there any specific authorization permitting the registrar, health officer or coroner to conduct an autopsy for the purpose of completing the death certificate. In completing the certificate when the death is referred to him by the registrar, the coroner is required to state the cause and manner of death as determined by the inquest.

A question similar to that of the Patrick case was presented in the case of Crenshaw v. O'Connell[10] in which the decedent while employed collapsed and died in the office of a physician shortly thereafter. The coroner was notified and ordered the body taken to a morgue. No inquiry was made of any witnesses and none of the relatives were contacted. The coroner requested a pathologist to conduct an autopsy, which disclosed that death had resulted from natural causes. No inquest was held. A suit was entered against the coroner and a ver-

dict returned in favor of the widow of Crenshaw. The verdict was sustained on appeal, the court holding that the authority of the coroner to perform autopsies is limited by statute and such examinations may be made only as a part of an inquest before a jury in cases in which death is supposed to be due to violence or casualty. As to the holding of an inquest the court said, "while the coroner acts judicially, and has a discretion with respect to determining whether an inquest shall be held, neither the inquest itself, nor the calling and holding of an autopsy in connection with it, is a proceeding judicial in character so as to relieve the coroner from civil liability for his acts in relation to it." The court further commented, "while it may be thought desirable that the coroner should have the power to hold an autopsy in order to determine whether an inquest should be held, the law gives him no such authority, so that in the case of a person who is merely supposed to have come to his death by violence or casualty, an autopsy performed except in connection with an inquest is unlawful and illegal, regardless of what might be the coroner's good faith in the exercise of a mistaken authority in the matter."

Section 13255 provides that a coroner may dispense with the jury when some credible person shall declare under oath that the person whose body is to be viewed came to his death by violence or casualty.[11] The section deals with the payment of fees and it is my opinion that great caution should be exercised by the coroner under this section and it would be better to follow the procedure set out in sections 9767[12] and 13231;[13] the latter section providing that when the coroner is notified of the death of a person supposed to have been caused by casualty or violence he shall forthwith summon a jury of six to view the body and determine how and why the person came to his death. This section does not authorize an autopsy and it would appear that an autopsy cannot be performed until the jury has viewed the body and determined that death was caused by some criminal act that could only be proved by an autopsy.

The coroner should always be cautious and never permit a body to be autopsied unless an inquest is held and then only when the facts are such that they fall within the authority granted by statute.

A physician or pathologist may think that he is covered by liability insurance, but he will find the insurance company standing on every possible technicality. He should see that his policy of liability insurance carries a rider giving him coverage in cases in which he is employed by a coroner, insurance company or a commission established by law. If the coroner is a physician he should see that his policy carries a rider covering him in an official capacity as well as in his private practice.

It may be that doubt will be in the minds of some, but the old maxim, "When in doubt, play it safe," can be applied under the circumstances. In any event, there is still a legislature that can be petitioned to change those laws which are thought to be in need of amendment.

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6. Patrick v. Employers Mut. Liability Ins. Co., 233 Mo. App. 251, 118 S. W. (2d) 116 (1938).
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8. *Ibid.*
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MEDICOLEGAL ASPECTS OF THE SALE AND USE OF BARBITURATES

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History has shown that all great movements in the nature of social reforms pass through three stages. There is first the crusading period, during which time the masses of people are acquainted with the need for a reform and positive actions are taken to make the desires known to the appropriate legislative body. Next comes the period of adjustment, when, with legislative authority established, it becomes necessary to set up the machinery to carry out the legislative intent. Finally comes the third stage, at which time the real task of making the legislation effective begins. So it is with the regulation of the sale and use of barbiturates.

So much has been said, so much has been written, that it becomes redundant to say more of the evils of the injudicious use of barbiturates. However, the facts indicate that not all members of the medical and druggist professions have been too deeply impressed.

Though there is nothing new, it might be well to review the situation that existed which prompted an attempted regulation of the sale and use of barbiturates. By 1936, production of the drug had risen to two hundred and thirty thousand pounds. Last year total production probably exceeded five hundred thousand pounds; in terms of individual doses, more than seven hundred million capsules. That much of this production was wrongly used, no one would question. There are, indeed, many individuals who can name a friend or an acquaintance whose life has to a considerable extent been wrecked by the use of the drug.

There has been a general tendency to see only the good results from the consumption of barbiturates—their ability to aid one in getting a good night's sleep. It is unfortunate that the ill effects are not as widely known. Sustained use can cause severe depression, headache and other symptoms simulating many neurologic syndromes.

When a person becomes habituated to barbitu-

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rates, his desire for the drug increases but he builds no more than slight tolerance to it. Just how many deaths have resulted from the use of barbiturates no one knows. However, it is certain that barbiturate fatalities outnumber those of any other drug. Death of an individual is, indeed, a high price for society to pay. But habituated individuals who stay within the reasonable bounds of safety are an equal burden. They are not only a menace to themselves but to others. Small doses interfere with normal muscular reaction. In such condition a motorist is a hazard to all. Within the last few days there has come to the attention of the Food and Drug Administration a person who had two serious automobile accidents in one day while under the influence of a barbiturate.

In proper channels, barbiturates rank high among the most valuable drugs known to medicine. The discovery of the first derivative of barbituric acid, barbital, in 1903 is considered a great research achievement. Many hundred derivatives have been prepared since then, of which sixteen have been accepted for use by the Council of Pharmacy of the American Medical Association. The value of these drugs is apparent when one observes their ability to prevent an epileptic attack or to quiet a nervous patient being prepared for surgery.

It cannot be too strongly emphasized that there is nothing to fear so long as barbiturates are in proper hands. The harm comes when the products are injudiciously used. It is to prohibit the wrong use of barbiturates that federal, state and city laws have been enacted to regulate the sale and use.

The Federal Food, Drug and Cosmetic Act admittedly was not enacted for the one purpose of regulating the sale and use of barbiturates. The Act is all inclusive, and attempts to regulate the sale and use of all foods, drugs and cosmetics. It is inevitable that such a law often lacks the conciseness which is desirable to cope with a particular situation. In the first place, the statute was designed to regulate only the interstate traffic of products subject to its requirement. To attack the problem of the wrong use of barbiturates, it is obvious that more could be accomplished were it not necessary to establish the interstate nature of the merchandise. In other words, barbiturates made and sold solely within the State of Missouri are not subject to regulation by the federal statute. In interpreting any Act of Congress, it is customary for courts and for administrative officers to search the records of Congress, itself, to ascertain the legislative intent. The report by Chairman Lea of the House Committee on Interstate and Foreign Commerce on April 14, 1938, is most revealing as to what Congress intended in the way of regulating such drugs as barbiturates: "Control is set up for drugs which are dangerous to health when taken in the dosage and with the frequency prescribed by the manufacturer in the labeling. Habit forming drugs must be labeled with warnings that they are habit forming. Potent drugs liable to be misused must bear label warnings against probable misuse."

In attempting to regulate the sale and use of drugs, Congress has to a great extent placed upon the physician the responsibility for the distribution and use of the product. Section 502(f) of the law provides that a drug shall be deemed to be misbranded: "Unless its labeling bears (1) adequate directions for use; and (2) such adequate warnings against use in those pathological conditions or by children where its use may be dangerous to health, or against unsafe dosage or methods or duration of administration or application, in such manner and form, as are necessary for the protection of users: Provided, that where any requirement of clause (1) of this paragraph, as applied to any drug or device, is not necessary for the protection of the public health, the Administrator shall promulgate regulations exempting such drug or device from such requirement."

Pursuant to the provision of this section of the law regulation (b) provides: " . . . a drug or device shall be exempt from the requirements of section 502(f)(1) of the Act if it complies with all of the following conditions: (1) Such drug or device, because of its toxicity or other potentiality for harmful effect or the method of its use or the collateral measures necessary to its use, is not generally recognized among experts qualified by scientific training and experience to evaluate its safety and efficacy, as safe and efficacious for use except by or under the supervision of a physician, dentist, or veterinarian. (2) Such shipment or delivery is to be: (i) Dispensed by physicians, dentists, or veterinarians in their professional practice; (ii) Dispensed upon prescriptions issued by physicians, dentists or veterinarians in their professional practice and under labeling bearing the directions for use specified in such prescriptions; (iii) Compounded with other substances in filling such prescriptions or (iv) Used in the manufacture of another drug or device. (3) Information adequate for the use of such drug or device by physicians, dentists, or veterinarians, as the case may be, is readily available. (4) The label of such drug or device (other than surgical instruments and other devices to be used exclusively by physicians, dentists, or veterinarians in their professional practice) bears the statement 'Caution: To be dispensed only by or on the prescription of a physician' . . ."

It is generally accepted that adequate directions cannot be written which would provide for the promiscuous distribution of barbiturates in a safe manner. The distribution of these drugs, therefore, must be only by or on the prescription of a physician.

Failure of the physician to recognize his responsibility often is a source for the wrong use of barbiturates. A physician may decide, for example, that his nervous patient needs a week of complete rest. So that he may get proper sleep, he writes a prescription for seven of the tablets. The patient is delighted with the results. As far as he can see, there is no reason why he should not continue the use of the tablets. Without consulting the doctor,

he may have the prescription refilled. The patient's enthusiasm is increased with the results, so it becomes a habit to have the prescription refilled regularly. After a time, another individual is added to the growing list of habituated persons.

No one would question the doctor's decision to have his patient take the seven tablets. The unfortunate act was failure of the doctor to indicate on the prescription that it was not to be refilled. One case is reported in which a New York woman had a prescription for ten capsules of barbiturate. This one prescription was refilled until a total of four thousand, six hundred and forty capsules had been purchased. The dramatic end to the three-year episode was the rushing of the patient, seriously poisoned, in a semiconscious condition, to a hospital. Here in St. Louis investigation by the Food and Drug Administration disclosed one druggist who had dispensed several thousand tablets in the refilling of only one prescription. So far as is known, that prescription continues to be refilled. Such cases are not isolated instances but are relatively common.

The Food, Drug and Cosmetic Act was not enacted to regulate the practice of medicine. It is not its purpose, therefore, to deny a physician the right to use any medicine he desires in the treatment of his patients. Because of the high standard set by the various states before one can prescribe, it is seldom that further restriction is indicated. There are exceptions, however, which sometimes come to the attention of even the layman, when a doctor perhaps used poor judgment. Occasionally a hospital is found that makes it a practice of giving each patient a barbiturate each evening. One person even complained that he was awakened by the nurse so that he might take his sleeping pill. Such a practice may be the cause of many people becoming innocently habituated to the drug.

Section 502 of the Federal Food, Drug, and Cosmetic Act provides that a drug shall be deemed misbranded, among other things, if it contains barbituric acid or any chemical derivative of the substance unless it bears prominently the statement: "Warning—may be habit forming." If the product is distributed on a physician's prescription marked not to be refilled, it is apparent that no good purpose would be served in the druggist marking the product with the habit forming warning. However, unless the prescription is marked not to be refilled, it becomes necessary for the druggist to so label the prescription. Failure on the druggist's part to put the habit forming warning on the prescription renders him liable to the misbranding of the product while in interstate commerce, providing, of course, the original container, out of which the prescription was filled, moved in interstate commerce. The decision as to whether the habit forming legend is to be placed on the prescription rests entirely with the physician.

The question has been asked repeatedly as to whether a druggist may legally fill a prescription that is given orally. The Statute is very definite in its answer. Section 503 provides exemption only in case the drug is dispensed on the written prescription of a physician, dentist or veterinarian.

Another source of supply of barbiturates for those habituated to the drug is the druggist who fails to live up to the high standard of his profession. One store sold more than one hundred twenty thousand capsules in a single year and had only two legitimate prescriptions to show for the sale. Another store in Greater St. Louis sold more than fifteen thousand tablets and had only one legitimate prescription. That prescription was one which an agent of the Food and Drug Administration had filled to check on the firm's practice of filling this type prescription. The incident of such promiscuous sale is not too common. Attempts by agents of the Food and Drug Administration to make purchases are not always successful. However, a check of many firms' purchases and prescriptions often shows many tablets which cannot be accounted for. The logical conclusion is that many druggists who will not sell the drugs promiscuously will sell them without prescriptions to their friends. One druggist in Greater St. Louis is so cautious about his illegal sales of the drugs that he refuses sales to his regular habitué trade if someone else happens to be in the store.

Some two years ago agents of the Food and Drug Administration made a thorough investigation of the sale of barbiturates in Waco, Texas. Many stories of grief and crime were traced to one drug store which had improperly sold forty thousand barbiturates in eighteen months. Records showed there had been numerous people in jail each day during the previous year, sleeping off so-called barbiturate jags.

Another somewhat similar instance was found in Jackson, Ohio. In less than a year and a half one store had sold more than 12,000 tablets without prescriptions. Numerous habituated individuals were found in the small town and at least two stories of unexpected death were traced to the use of the pills.

The question naturally arises as to what section of the law prohibits the druggist from selling barbiturates without prescription. Section 301(k) of the Federal Food, Drug and Cosmetic Act defines as one of the prohibited acts: "The alteration, mutilation, destruction, obliteration, or removal of the whole or any part of the labeling of, or the doing of any other act with respect to, a food, drug, device or cosmetic, if such act is done while such article is held for sale after shipment in interstate commerce and results in such article being misbranded."

As barbiturates are received by the druggist, the product is labeled to be used only by or on the prescription of a physician. As previously pointed out, this is the only way the product can be distributed by the manufacturers as it is impossible to write adequate directions for the promiscuous use of the product. All drugs must be labeled with adequate directions unless the manufacturer avails

himself of the exemption of this requirement by the use of the prescription legend. It is thus apparent that the druggist, in dispensing barbiturates without a prescription, misbrands the product while it is in interstate commerce since it is being sold without adequate directions for use.

A recent court decision involving the sale of a restricted drug without prescription gives a clear interpretation of the law: "One of the purposes of the Federal Food, Drug and Cosmetic Act is to prevent the misuse of the facilities of interstate commerce in conveying to and placing before the consumer misbranded and adulterated articles of medicine or food."

Section 301(k) of the law is given a very concise interpretation before the same court: "This purpose could not have been accomplished if the provision now being considered had been omitted. Its absence would have made it relatively simple, in many instances, to render nugatory the misbranding provisions of the Act by simply shipping in interstate commerce properly labeled articles and misbranding them after the transportation ended. Anticipating resort to such stratagem, whether as part of a scheme or not, Congress sought to prevent it by enactment of subsection (k) which would preserve the integrity of labeling of an article that had been shipped in interstate commerce until it reached the consumer."

The court having found that this section of the law is within the lawful exercise of Congressional prerogative, then considered whether the action on the part of the druggist in the sale of the drug labeled "To be used only by or on the prescription of a physician" without a prescription violated the law: "It is unnecessary in considering this case to determine whether or not the articles on which the alleged acts were done were in interstate commerce at the time the misbranding took place. It might well be that in the instant case the article while on the shelf of the retailer was in interstate commerce. . . . It is sufficient to show interstate shipment of the article and the doing of the prohibited act while the article was held for sale. It is apparent Congress intended to preserve the integrity of the labeling of an article that had been shipped in interstate commerce until it reached the consumer, even though the article was no longer in interstate commerce."

Referring to the regulations exempting drugs bearing the "prescription legend" from bearing directions for use, the court commented: "The exemption is to remain effective until the drug is dispensed upon and under labels bearing the directions for use specified in prescriptions of physicians. This regulation as it affects the present case would require the drug to be sold on a physician's prescription and to bear the directions for use specified in the prescription. The prescription legend is not a substitute for adequate directions for use."

Supplementing the Federal Food, Drug and Cosmetic Act in the regulation of the sale and use of barbiturates are various state laws and city ordinances. Although city laws and ordinances have in several instances antedated state laws, the first state law dealing with the regulation of barbiturates and other hypnotic drugs was enacted by California in 1929. Since that time a total of thirty-five states and possessions, including the District of Columbia, have enacted laws which directly or indirectly could be used to provide some measure of control of the distribution of barbiturates. All but one of these thirty-five laws, that of New Hampshire, restrict the distribution of barbiturates to prescriptions. Only five of the laws prohibit unconditionally the refilling of a barbiturate prescription. The remaining thirty laws permit refilling of prescriptions under certain conditions. Of the thirty-five laws that have been enacted, only seventeen make a definite provision for dispensing of barbiturates by licensed medical practitioners. In the case of Missouri, the matter of refilling prescriptions is not mentioned. It is assumed, therefore, that refilling is permissible.

A review of the state laws dealing with the labeling requirements that must be observed by the pharmacist shows an equal lack of uniformity. Not more than one half make any reference to the requirement. Missouri law requires that the following information appear on a prescription: date, prescription, serial number, name of dispenser, address of dispenser, name of prescriber. While Missouri does not have a special law designed to regulate the sale and use of barbiturates, it has adopted the uniform State Food, Drug and Cosmetic Act. This law, like the federal statute, prohibits the sale of drugs dangerous to health except on a prescription. Failure of the Board of Health thus far to declare barbiturates dangerous to health indicates that the state does not propose to use this law in an attempt to regulate the sale and use of barbiturates.

To be effective in the regulation of the sale and use of barbiturates at the state level, it would appear most desirable not only to regulate the distribution by the physician and druggist but also the wholesale distribution. The reason for this is apparent as the flow from the wholesale houses may enter channels that would be most difficult for the authorities to cope with. Unfortunately, of the thirty-five state laws dealing with barbiturates, only six make any attempt to regulate the product in the hands of the wholesalers.

Still more astonishing is the fact that only seven states have made illegal possession of the drug an offense. Failure in this respect makes doubly difficult the keeping of the drug in proper channels. Were illegal possession an offense, there probably would not be nearly so many of the tablets displayed as freely on bathroom shelves. Neither would there be so many of the tablets in the pockets of business men or in the purses of nervous women attending bridge parties.

Illegal possession probably would prevent many a pitiful story of domestic tragedy such as was uncovered not so long ago in Waco, Texas. The em-

ployment of a father of a family necessitated that he work at night and sleep during the day. Sleeping in the day was found difficult and he resorted to the use of barbiturates. Even though the drug was taken, he still found it difficult to sleep because of the noise of his children. To correct this, he started giving each of the youngsters a barbituate. The matter first came to light when a kindergarten teacher notice one of the morose, irritable children take a box from his pocket that contained the tablets. The children had become innocently habituated to the drug.

To be successful in the regulation of the sale and use of the barbiturates, the law must have the support of the people. The Narcotic Act, prohibiting the promiscuous sale and use of narcotics, has been successful primarily because the people realized that it was in the interest of society to so regulate the products. It would, indeed, tax the ordinary mind to conceive of a product more hostile to the welfare of the general public than a barbiturate used injudiciously. Following the temporary success of the Japanese, there were reported attempts to undermine the morale of the subjugated nations by the promiscuous distribution of narcotics. The recent trend in the use of barbiturates in the United States indicates that unless some concerted effort is exercised by all to stop the wrong use of barbiturates, the problem will be even more serious than that created by the Japanese.

Police all over the country report crimes being committed by persons while under the influence of the drug. It seems that the pills deaden their sense of fear. So generally is this recognized that traffic in channels comparable to the bootlegging of liquor is not uncommon. In these channels the capsules are known as "goof pills," "yellow jackets," "red dogs," "red birds," and other names, depending primarily on the color of the capsules. While it is realized that manufacturers often strive for some distinctive packaging of their product to differentiate it from competitors, such practice probably has contributed some to the growing use of products in illegitimate channels.

The problem presented by such use of the product is one with which the local police departments must deal. It is obvious that the federal law, in which interstate character of the goods must be established before the product is subject to its regulation, cannot be effective. Nor is it likely that most of the present state laws can be more effectively applied. In addition to the criminals who take the drug to deaden their sense of fear, people who take barbiturates probably fall into one of the following classifications: (1) People who through long sickness become habituated to the drug which was necessary for the physician to prescribe. (2) Neurotic persons who take the product for apparently no purpose except perhaps to give them temporary relief from some aggravating condition. (3) Introverts seeking a refuge for their mental state.

Stories of crime associated with the use of barbiturates are often dramatized by the newspapers. The temporary problem created by the drugs in this channel, while serious, is probably much less than the problem created by the consumption of the drug by persons in the three groups just mentioned. Only a small percentage of citizens are criminals or have any inclination to become criminals. On the other hand, each of the 130 million people of the United States is a potential habitué unless the drug is properly used.

The wielding of the so-called "big stick" in enforcing laws to regulate the sale and use of barbiturates will fail pitifully unless it is supported by an educational program to impress upon all the harm in taking the products when not needed. When this program has been completed, there will no longer be doctors who prescribe the product so promiscuously that habituated individuals are innocently made. Prescriptions will no longer be written in such a fashion as to constitute a legalized source of the product to habituated individuals who should be corrected of the habit. There will no longer be druggists who mar the name of their profession in the illegitimate sale of the drug. In short, there will no longer be a source of the drug that can be improperly used.

MEDICOLEGAL PROBLEMS IN DISTINGUISHING ACCIDENT FROM SUICIDE WITH SPECIAL REFERENCE TO MISSOURI CASES

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The problem of determining whether a death was accidental or suicidal is encountered frequently and is of great importance in coroners' investigations, insurance claims and workmen's compensation proceedings. The physician is a key witness in these legal proceedings, although the ultimate determination of the mode of death must be made by a jury, an administrative tribunal or a judge. The physician is drawn into these conflicts not only by virtue of his superior position to observe the true facts, but also because statutes compel his participation in determining the cause of death. Thus, under Missouri law, a physician is required to certify the death of a person attended by him, and if death resulted from "violence," "its nature shall be stated and whether (probably) accidental, suicidal or homicidal."[1] The death certificate must be signed by the attending physician regardless of the manner and cause of death and irrespective of the holding of an inquest.[2] Insurance companies usually require the beneficiary to furnish a proof of death certified by the attending physician.

The frequency with which the problem arises is

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shown by statistics indicating that one man out of every 100 and one woman out of every 350 kill themselves intentionally, and only about one half of all suicides officially are so reported. This means that from 40,000 to 50,000 people commit suicide every year in the United States. It has been estimated that there are 100,000 unsuccessful attempts each year. On the official records, deaths due to suicide equal those due to such competent killers as syphilis, congenital malformations, old age and the automobile. The suicide rate is double that of homicide, appendicitis, diseases of the gastrointestinal tract such as diarrhea and enteritis, hernia, intestinal obstruction and cirrhosis of the liver. Suicide takes more lives than all of the following diseases combined: typhoid fever, meningitis, scarlet fever, whooping cough, diphtheria, dysentery, malaria and diseases of puerperium and pregnancy. On a long term basis—since 1900, for instance—more Americans have ended their own lives than were killed in combat in the armed service of their country. Insurance companies annually pay out $30,000,000 for deaths due to this great destroyer of human lives, suicide.

For all of these reasons, every physician should know some of the legal consequences of his findings and certification, the manner in which such conclusions are treated in courts of law, and the basic scientific methods of distinguishing between the various causes of violent deaths and particularly accident and suicide.

In cases arising under insurance law and in workmen's compensation proceedings, death certificates and proofs of death, if properly signed, are prima facie evidence of the facts recorded and may be admitted in evidence to show the signer's belief that the death occurred in the manner stated.[3] These documents are binding and conclusive unless contradicted or explained.

It would be entirely misleading to imply that the issue is settled merely through the agency of medical evidence. It is seldom that the medical findings alone are sufficient to determine whether any one death was accidental or suicidal. In more than two thirds of all cases of violent death in which the precise cause of death is known and the final verdict is suicide, that opinion must depend, with few exceptions, principally upon evidence other than that of the medical witness.[4] Unjust claims and decisions easily arise where the exact cause of death has not been established accurately preliminary to any inquiry with respect to whether it was accidental or suicidal. The cause of death as stated on a death certificate or insurance proof of death may be assumed erroneously by a court and jury to be correct when, in reality, it represents only an opinion based on findings subject to divergent medical interpretation. Under such circumstances it may become the duty of a jury to settle a scientific controversy which might never have developed if the actual cause of death were known.

Thus, the problem of distinguishing accident and suicide imposes a special demand upon the physician to avoid any casual approach to a situation of both medical and legal concern. Once the actual physical or chemical cause of death is ascertained the physician must turn to other sources for guidance and assistance in order to reach a satisfactory conclusion regarding mishap or self-murder.

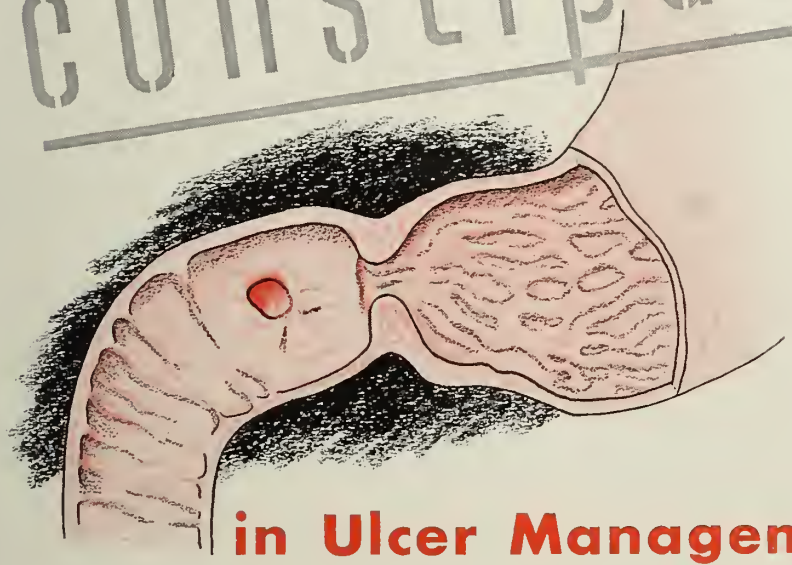
It is shown in another article[5] on this subject that in cases arising under insurance law and workmen's compensation proceedings *procedural* rules relating to the burden of proof, the presumptions against suicide and against insanity, and the sufficiency of evidence substantially affect the final result and occupy a position which seems as important as real evidence.

Strange and unjust decisions of juries and courts have been due frequently to improper application of such procedural rules. It is our purpose here to show by an examination of some of the mechanisms of judicial inquiry and the manner in which the conflict regarding accident and suicide ultimately is settled that an appropriate use of procedural rules may aid the physician in approaching the problem.

Burden of Proof.—The burden of proof means the "risk of non-persuasion." The party carrying the burden of proof must establish his case by a preponderance of the credible evidence. The burden of proof never shifts during the trial but the burden of going forward with the evidence may shift from plaintiff to defendant. It is therefore the duty of the party asserting a fact necessary to his cause of action or affirmative defense to plead and prove it. Thus (1) in claims for benefits under life insurance policies where suicide is excluded by the terms of the policy, the defendant insurance company must prove that death resulted from suicide, and (2) in claims for benefit under accident insurance policies or insurance policies offering to pay double indemnity in the event of accidental death, the claimant must prove that death resulted from accident. In the latter instance the insurance company denying the claim may prove any fact, such as suicide, to defeat recovery, but does not carry any burden to prove suicide. In brief, the burden of proof is on the defendant in a life policy claim, and upon the plaintiff in an accident policy claim.[6]

Sufficiency of Evidence.—(1) In claims arising under life insurance policies in which suicide is excluded by the terms of the contract, the court, at the close of all of the evidence, must determine whether there was sufficient evidence of suicide to submit the issue to a jury.[7] (2) In claims for accident benefits the court, at the close of all of the evidence must determine whether there is sufficient evidence of accident to submit the issue to a jury.[8] It is important to note that the court must examine the evidence in that view most advantageous to the party carrying the burden of proof, viz., the defendant in a life benefit claim and the plaintiff

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in an accident benefit claim. Plaintiff or defendant, as the case may be, is entitled to the aid of all reasonable inferences which may be gained from all of the evidence. In deciding this question of law (the sufficiency of the evidence to warrant submission of an issue to the jury) the court is obliged to reject contrary evidence and consider all evidence, including that of his opponent, which is consistent with the proponent's theory of recovery. Once the court has declared the issue to be submissible to a jury, the jury then becomes the sole judge of the matter. Courts, in general, are reluctant to declare suicide as a matter of law, but a certain degree of confusion has become evident through a failure to assign properly the burden of proof. Thus in accident claims it is not a question of whether suicide has been proved but a question of whether substantial evidence of accident has been shown. In life cases the issue is whether or not the defendant insurance company has conclusively demonstrated suicide to be the mode of death.

In this connection, it is worth noting that proper documentary evidence (suicide notes, photographs), statements by eye-witnesses, and witnesses to suicidal declarations are accepted usually by both court and jury as establishing the facts.[9] However, once a case is submitted to a jury it is the sole judge of the credibility of witnesses and the weight to be accorded their testimony. Documents and photographs help to avoid conflicts resulting from neglect, incompetence or dishonesty on the side of either party to a lawsuit. The tendency of the Missouri courts, as well as others, in recent years has been toward a more unbiased view of insurance law. Conflicts arising from a misunderstanding of the distinction between life and accident claims and the burden of proof are disappearing and courts are tending to follow three basic principles applicable to all other cases:[10] (1) evidence must be substantial before a jury is permitted to accept it as proof, (2) juries should not be allowed to consider speculative possibilities as evidence nor to return a verdict by resorting to mere speculation and conjecture, (3) where evidence is offered that death *might* or *could* have resulted from either of two causes and the defendant is liable for only one, the plaintiff cannot recover unless he succeeds in proving that cause to be the more probable.

Presumptions.—At law a suicide while insane and an unprovoked homicide are regarded as accidents. In Missouri a statute invalidates an insurance policy exclusion of insane suicides, but by judicial construction does not affect the rule that a sane suicide is not an accident. It is almost universally accepted that as soon as there is proof of violent death the law presumes that the death was not caused by suicide or murder. Missouri courts have interpreted the presumption as one favoring accident where death by violence is shown.[11]

This presumption, however, is not evidence[12] although earlier decisions regarded it as such[13] and merely shifts the burden of going forward with the evidence.[14] Such a presumption is rebuttable, disappears from the case when contrary facts are produced, and cannot be considered by the jury.[15]

In addition to the presumption against suicide, there is a presumption at law that all men are sane and conscious of the consequences of their actions.[16] Again, this is merely a procedural rule governing the burden of proof and the burden of going forward with the evidence. Since an insane suicide is an accident and a sane suicide is not, the plaintiff in seeking accidental death benefits has the burden of proving insanity. Proof of suicide at law raises no presumption that the individual committing suicide was insane at the time of the act. The burden of proving insanity as a theory of accidental death therefore rests upon the plaintiff.[17]

Expert and Non-Expert Evidence.—In order to prove that death resulted from accident or suicide, the investigator draws his evidence from (1) external findings, (2) internal findings, either of which may comprise (a) direct evidence or (b) circumstantial evidence. Thus in a suicide, the testimony of a witness, the presence of a suicide note, and a photograph comprise direct evidence and no resort may be needed to circumstantial evidence or search for motive. In the absence of such direct evidence, the investigator must collect evidence of other facts which by their association with the fact in issue, *i. e.*, suicide, tend to lead to a satisfactory conclusion of a cause and effect relationship.

The question of whether or not death resulted from self-inflicted injuries must be resolved at the outset by a search for external evidence, the inquiry turning to such physical findings as (1) the cause of death, (2) the location, size, direction, course, nature and extent of all wounds, (3) the source of the injury-producing agent, the access of the decedent to it, and the relation of the lethal agent to the body after death. Direct evidence is so generally lacking or unsatisfactory or inconclusive that a search must be made for internal evidence of the intent of the decedent, incentives or deterrents to suicide and whether or not the decedent knew the lethal character of the instrument or agency producing death. Such a question may involve proof of (1) motive, (2) ulterior purpose, (3) physical and mental states previously unknown, (4) knowledge of the lethal character of the agency producing death, (5) previous efforts at suicide, (6) occasion to use the fatal agency, (7) conduct and remarks by the decedent before death, (8) attempts to prevent survival or efforts at self-help, (9) the conduct and statements of witnesses and relatives after the injury and (10) the time and place of the act. The usual deterrents or incentives to suicide may be found by reference to age, domestic relations, financial circumstances, lack of employment, fear of arrest or imprisonment, frustrated love, religion, superstitions, and others.

The medical expert, in attempting to aid in distinguishing accident from suicide, has evolved many

general rules applying to the "usual" cases. For example: (1) accidental injuries, likely to be lacerations, contusions or abrasions, involve multiple exposed parts of the body often inaccessible to the hands, (2) suicidal injuries, likely to be incised wounds of the neck, gunshot wounds of the mouth, or hanging, involve parts of the body accessible to the hands and often comprise multiple methods of injury. The pattern of the wounds, the presence or absence of bleeding, or of foreign material in the wounds, or of corresponding defects in the clothing and the position of the body permit the expert many general inferences relative to the manner of death. But it is agreed universally that except in the instance of injury by firearms the expert is of little practical assistance in arriving at the ultimate decision, providing the exact cause of death is determined. This emphasizes the conflict that arises when the physician is called upon by statutory law to certify whether a death resulted from suicidal, homicidal or accidental means and in most instances has only meager non-medical evidence upon which to base his opinion. Ewell summed it up by saying that "whether wounds are suicidal, accidental or homicidal is frequently impossible to determine; and when it can be determined, must depend upon the application of the ordinary rules of evidence and not upon the medical expert."[18] Glaister termed the subject "a field . . . too wide . . . to permit of the statement of such guiding principles as might be of absolute value to the student."[19]

This is not to imply that no aid can be expected from the expert; it is rather to suggest that he can best serve by providing the type of direct evidence that offers the least opportunity for dispute. A careful attention to (1) detailed description of injury, (2) proper photographs and (3) a determination of the exact cause of death and the presence of drugs, chemicals or disease will forestall speculation by courts, juries, counsel and other physicians regarding the question of accident and suicide. It is not the special fault of the courts that juries must often make their decisions on the basis of inadequate evidence.

An autopsy not supplemented with special forms of examination may be as useless as no autopsy whatsoever. Chemical analysis of the stomach contents without analysis of blood, urine and organs may be inconclusive and misleading. A determination of the carbon monoxide content of the blood may be more important than a careful anatomic study of the various organs. The medicolegal autopsy with its special objectives and methods must be recognized both by lawyers and physicians as being distinctly different from the autopsy performed in hospitals or universities for particular medical purposes.

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arising from accident or suicide. Since ordinary small arms cannot be intentionally fired by an individual upon himself where the muzzle of the gun is held at a distance greater than two feet, the problem resolves itself into a decision of whether (1) the gun was fired in contact with the body, or (2) the gun was fired within two feet of the body or (3) the gun was fired at a distance of more than two feet from the body. The suicide will usually fire the gun either in contact with the body or within only a few inches of it. A contact shot may leave no powder marks on the surface of the body, and upon casual inspection may appear exactly the same as a shot fired a considerable distance away. In other words, the mere presence or absence of powder marks is not reliable evidence either of accident, suicide or homicide. However, where no powder marks are present on the exterior skin, an autopsy will readily disclose whether the gun was in contact with the body or not. In contact shots, unburned powder and gases are injected into the wounds leaving unmistakable effects upon subsurface tissues, organs, bones and body cavities.

Certain corollary questions arise as to (1) whether the clothing was penetrated by the discharged bullet, or (2) whether or not a vital part of the body was entered by the bullet. Entrance wounds must be distinguished from exit wounds by the presence of (1) burning, (2) bruising, (3) deposits of smoke, metal, powder, cloth and hair as shown by chemical, photographic, microscopic or radiographic methods. The burning of the clothing or skin, the presence of smoke, powder or metal upon the surface of the wound or at the subsurface or interior of the wound will provide important facts relative to the range of fire as has been noted. Determination of the direction of the wound is often of value in instances in which accident is a theory upon which a claim is made. Patterns of bruising or abrasion resulting from impact upon the skin by the muzzle of the gun or its ejector rod as well as the presence of blood upon the muzzle of the gun or within the barrel are important adjuncts of evidence favoring suicide.

In deaths from violent means other than by firearms once the exact cause of death and the presence or absence of drugs, chemicals or disease is established the question of accident or suicide must be determined almost entirely by other means. It is important to note (1) in death from blunt impact no external evidence of injury may be observed although extensive internal injuries are present, (2) in death from fall or jump mathematical computations may be of value in determining whether or not the decedent jumped or fell from a height, (3) chemical studies of the blood may be needed to prove that death resulted from asphyxia by drowning or other means, (4) analysis of stomach contents is insufficient to prove that death resulted from poisoning and careful attention must be given to the preservation of proper material as well as to the analysis of proper specimens.

REFERENCES

1. R. S. Mo., 1939, section 9766. Penalties are imposed for refusal of the physician to sign the death certificate if he were present at the time of death. R. S. Mo., 1939, section 9782.

2. O'Donnell v. Wells, 323 Mo. 1120, 21 S. W. (2) 762; Patrick v. Employers Mut. Liability Ins. Co., 233 Mo. App. 251, 118 S. W. (2d) 116 (1938); Gilpin v. Aetna Life Ins. Co., 234 Mo. A. 566, 132 S. W. (2d) 686 (1939); Crenshaw v. O'Connell, 235 Mo. A. 1085, 150 S. W. (2d) 489 (1941); address by Raymond E. La Driere, Judge of the Circuit Court of St. Louis County, at the Annual Medicolegal Conference, St. Louis, November 24, 1945 (unpublished). See also Laws of Missouri Relating to Inquests and Coroners, Breyfogle, H. S., Mo. Law Review, 10:34-64, 1945. The term "medical attendance" is not defined by statute.

3. 93 A. L. R. 1342; 159 A. L. R. 171; Cooley, R. W., Briefs on the Law of Insurance, ed. 2, vol. 6, pp. 5466-5468, 5477-5478; Couch, G. J., Cyclopedia of Insurance Law, vol. 8, section 2200, p. 7111 ff, sections 2225-2229, p. 7213 ff. For admissibility of death certificates and all of the statements contained therein, see 17 A. L. R. 359; 42 A. L. R. 1454; 96 A. L. R. 325; Couch, *op. cit. supra*, vol. 8, p. 7232.

4. Richardson, O., and Breyfogle, H. S., Medicolegal Problems in Distinguishing Accident from Suicide, Ann. Int Med. 25:22-66, July, 1946.

5. *Ibid.*

6. *Life insurance claims.* Insurance company must prove suicide. Hunt v. Ancient Order of Pyramids, 105 Mo. A. 41, 78 S. W 649 (1904); Almond v. Modern Woodmen of America, 133 Mo. A. 382, 113 S. W. 695 (1908); Claver v. Woodmen of the World, 152 Mo. A. 155, 133 S. W. 153 (1911); Richey v. Woodmen of the World, 163 Mo. A. 235, 146 S. W. 461 (1912); Parker v. Aetna Life Ins. Co., 289 Mo. 42, 232 S. W. 708 (1921); State ex rel. Bowdon v. Allen, 337 Mo. 260, 85 S. W. (2d) 63, (1935). *Accident insurance claims.* Plaintiff must prove accident. Defendant does not carry burden of proving suicide but burden of going forward with the evidence may be shifted to defendant. Scales v. Nat'l. Life & Acc. Ins. Co., Mo. Sup., 212 S. W. 8 (1919); Brunswick v. Standard Accident Ins. Co., 278 Mo. 154, 213 S. W. 45 (1919); Griffith v. Cont. Cas. Co., 299 Mo. 426, 253 S. W. 1043 (1923); Landau v. Pac. Mut. B. H. & A. Ass'n., 305 Mo. 542, 267 S. W. 370 (1924); Moss v. Equitable Life Ins. Co. of Iowa, C. C. A. 8, Mo. 71 F. (2d) 795 (1934); Sellars v. John Hancock Mut. Life Ins. Co., Mo. A., 149 S. W. (2d) 404 (1941); Laventhal v. N. Y. Life Ins. Co., D. C., Mo., 40 F. Supp. 157 (1941); Edwards v. Business Men's Assur. Co., 350 Mo. 666, 168 S. W. (2d) 82 (1942). See also and compare: Laessig v. Traveler's Protective Ass'n., 169 Mo. 272, 69 S. W. 469 (1902); Reynolds v. Maryland Casualty Co., 274 Mo. A. 96, 201 S. W. 1131 (1918); Andrus v. Bus. Men's Acc. Ass'n., 283 Mo. 442, 223 S. W. 70 (1920); Kahn v. Met. Cas. Ins. Co., Mo. Sup., 240 S. W. 793 (1922); Gilpin v. Aetna Life Ins. Co., 234 Mo. A. 566, 132 S. W. (2d) 686 (1939).

7. *Sufficiency of Evidence. Life policies; suicide excluded.* Where evidence is documentary or the defendant relies on the plaintiff's own evidential showing and the reasonable inferences therefrom all point one way, there is no issue of fact to be submitted to the jury. State ex rel. Bowdon v. Allen, 337 Mo. 260, 85 S. W. (2d) 63 (1935). On the question of a submissible case "we must assume that the testimony adduced by the defendant is true . . . and defendant is entitled to every reasonable intendment which follows from the testimony." Bell v. K. C. Life Ins. Co., Mo. A., 71 S. W. (2d) 1934. "Where the reasonable probabilities from the evidence all point to suicide as a cause of death . . . so as to leave no room for reasonable controversy . . . a jury . . . should not be permitted to find to the contrary." Richey v. Woodmen of the World, 163 Mo. A. 235, 146 S. W. 461 (1912). "Substantial evidence is evidence from which the triers of the fact reasonably could find the issue in harmony therewith. . . . In determining the sufficiency of contestant's evidence, we must accept their evidence as true, disregard proponent's evidence, and give contestants the benefit of every favorable inference that may be legitimately drawn from the whole evidence." Walter v. Alt, 348 Mo. 53, 152 S. W. (2d) 135 (1944) (not an insurance case). "Where the evidence is wholly circumstantial suicide cannot be declared as a matter of law, unless such circumstances exclude every reasonable hypothesis except suicide." Parker v. Aetna Life Ins. Co., 289 Mo. 42, 232 S. W. 708 (1921). "To overcome the natural presumption against suicide there should be a great preponderance of evidence." Almond v. Modern Woodmen of America, 133 Mo. A. 382, 113 S. W. 695 (1908); Claver et al v. Woodmen of the World, 152 Mo. A. 155, 133 S. W. 153 (1911). The burden is always on the plaintiff to prove the facts that will warrant a recovery, and that burden never shifts. When any essential part of that proof is supplied by a presumption of fact, and the defendant proves what were the actual facts, and that proof shows the facts to be different from the presumption of fact relied on by the plaintiff, then the plaintiff must produce other evidence to meet the facts proven by the defendant, and if he does not produce it, the defendant is entitled to a directed verdict. The same is true where the defendant pleads an affirmative defense. Turner v. Nat. Benev. Soc., 224 Mo. A. 463, 28 S. W. (2d) 125 (1930).

8. *Accident policies; double indemnity benefits.* Where the evidence is wholly circumstantial suicide cannot be declared as a matter of law unless the circumstances exclude every other reasonable hypothesis than suicide. The evidence must be of such quality as to negative every reasonable inference of death by accident. Edwards v. Bus. Men's Assur. Co., 350 Mo. 666, 168 S. W. (2d) 82 (1942); Griffith v. Cont. Cas. Co.,

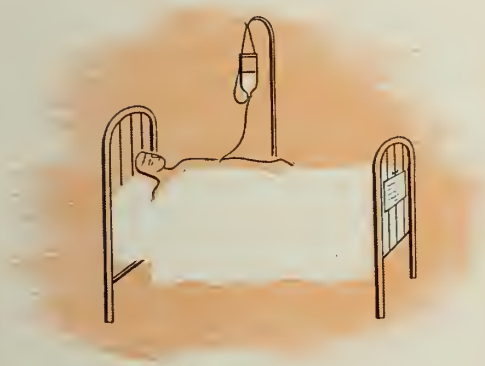
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Lund and Levenson: J.A.M.A. 128:95, 1945

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299 Mo. 426, 253 S. W. 1043 (1923); Brunswick v. Standard Acc. Ins. Co., 278 Mo. 154, 213 S. W. 45 (1919); Reynolds v. Maryland Cas. Co., 274 Mo. A. 96, 201 S. W. 1131 (1918). The court may properly reject evidence which is contrary to the physical facts or to known physical laws or which is the result of evident mistake or ignorance, or, in short, when the evidence itself, or the established facts, discloses inherent infirmity. Walter v. Alt, 348 Mo. 53, 152 S. W. (2d) 135 (1941) (Not an insurance case). The defendant is not entitled to an instructed verdict unless his evidence discloses no impeaching facts and is uncontradicted. Gilpin v. Aetna Life Ins. Co., 234 Mo. A. 566, 132 S. W. (2d) 686 (1939). It is a judicial function to determine whether the evidence is substantial and if it is not there is nothing for the jury to decide. Morgan v. Kroger Grocery & Baking Co., 348 Mo. 542, 154 S. W. (2d) 44 (1941). Where the evidence is entirely circumstantial, leaving the presumption against suicide, an inference of accident is sufficient to take the case to a jury. Landau v. Pac. Mut. Life Ins. Co., 305 Mo. 542, 267 S. W. 370 (1924). Evidence that insured fell from rowboat and suffered a wound on his chest together with expert testimony that shock and strangulation might have caused death was sufficient to warrant jury in finding accidental injury. Kahn v. Mut. Cas. Ins. Co., Mo. Sup., 240 S. W. 793 (1922).

9. In Gilpin v. Aetna Life Ins. Co., 234 Mo. A. 566, 132 S. W. (2d) 686 (1939) a conflict developed over the location and character of the fatal gunshot wound of entrance. The coroner, a pathologist, and several non-medical witnesses disagreed as to whether the wound was in the middle of the forehead, the right side of the forehead, the right temple or above the right ear and also as to the presence of powder residue about the wound. The jury was obliged to decide whose opinion was correct. There was no photograph. In Klinginsmith v. Mut. B. H. & A. Ass'n., 228 Mo. A. 229, 64 S. W. (2d) 705 (1933) there was a conflict as to the exact position of the body and of the gun. There was no photograph. In Reynolds v. Maryland Casualty Co., 274 Mo. A. 96, 201 S. W. 1131 (1918) there was a conflict regarding the presence of "powder burns" about one of the gunshot wounds. There was no photograph.

In Richey v. Woodmen of the World, 163 Mo. A. 235, 146 S. W. 461 (1912) a conflict developed over the existence of a suicide note. In Moss v. Equitable Life Insur. Co. of Iowa, C. C. A. 8, Mo., 71 F. (2d) 795 (1934). The court said of expert testimony regarding the range of gunfire, "the testimony of the expert is purely opinion evidence and based on testimony given 18-20 months after witnesses examination of the body and clothing. The opportunity for a failure in memory or an honest mistake make it not at all surprising that less weight was given to the expert's opinion." There was no photograph.

10. If the jury, after hearing all the evidence, was unable to tell whether insured's fall was accidental or intentional, it was because the plaintiff had failed to discharge the burden resting upon her of showing by the greater weight of evidence that it was accident. An affirmative finding should be based on evidence and not on guess or conjecture. Griffith v. Cont. Cas. Co., 299 Mo. 426, 253 S. W. 1943 (1923); Landau v. Pac. Mut. Life Ins. Co., 305 Mo. 542, 267 S. W. 370 (1924); Kahn v. Met. Cas. Ins. Co., Mo. Sup., 240 S. W 793 (1922) (dissenting opinion). Burden is on the plaintiff to prove by the greater weight or preponderance of the evidence that death was accidental. Moss v. Equitable Life Ins. Co. of Iowa, C. C. A. 8, Mo., 71 F. (2d) 795 (1934). Proof consistent with either of two theories will support neither. If the trier of the facts, aided by the presumption of sanity and love of life is unable to say whether death was the result of an insane or an intentional rational act, the burden of proof has not been sustained and the plaintiff may not recover. Laventhal v. N. Y. Life Ins. Co., D. C. Mo., 40 F. Supp. 157 (1941). Where it is sought to establish a case by circumstantial evidence, and facts, proven by party with burden of proof as a matter of law give no more than an equal basis to two inconsistent inferences as to an essential fact, such party has failed by his proof to remove his cause beyond the realm of speculation and conjecture as to the existence of such essential fact. Edwards v. Business Men's Assur. Co., 350 Mo. 666, 168 S. W. (2d) 82 (1942).

11. Gilpin v. Aetna Life Ins. Co., 234 Mo. A. 566, 132 S. W. (2d) 686 (1939); Sellars v. John Hancock Mut. Life Ins. Co., Mo. A. 149 S. W. (2d) 404 (1941); Klingsmith v. Mut. B. H. & A. Ass'n., 228 Mo. A. 229, 64 S. W. (2d) 705 (1933). Compare: Laessig v. Traveler's Protective Ass'n., 169 Mo. 272, 69 S. W. 469 (1902); Brunswick v. Standard Accident Ins. Co., 278 Mo. 154, 213 S. W. 45 (1919).

12. Edwards v. Business men's Assur. Co., 350 Mo. 666, 168 S. W. (2d) 82 (1942); Reliance Life Ins. Co. v. Burgess, C. C. A. 8, Mo., 112 F. (2d) 234 (1940).

13. Parker v. Aetna Life Ins. Co., 289 Mo. 42, 232 S. W. 708 (1921); Norman v. United Commercial Travelers, 163 Mo. A. 175, 145 S. W. 853 (1912); Reynolds v. Maryland Casualty Co., 274 Mo. A. 96, 201 S. W. 1131 (1918).

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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 5, May, 1947.

PULMONARY TUBERCULOSIS IN HARVARD MEDICAL STUDENTS

Tuberculosis among medical students and nurses remains a localized point of resistance to generally effective control measures. This is an anomalous situation when one considers that tuberculin tests, the use of x-ray in diagnosis and the principles of isolation technic are being taught and demonstrated to these students while apparently not fully utilized for their protection. This situation is a professional challenge to schools of medicine and nursing. Society can ill afford to lose the usefulness of these carefully chosen and highly trained young people as they prepare for or begin what should be a life of service in their profession.

Despite a marked fall in the morbidity and mortality due to pulmonary tuberculosis among the general population and despite advances in its early diagnosis and treatment, tuberculous infection of the lung remains the most serious medical probem that confronts the medical student. Although for more than a century European clinicians had been aware of an apparent high incidence of pulmonary tuberculosis among medical students, a similar high incidence was overlooked in American medical schools until 1930. Since that date several surveys have shown that rates depend somewhat on the geographical origin of the student body, the location of the school, the diagnostic criteria and the care with which the survey was conducted. The most carefully conducted surveys report an incidence in the neighborhood of 1 or 2 per cent.

The medical histories of 24 classes of the Harvard Medical School, beginning with the class of 1926, were studied. All available clinical information, including x-ray films as well as sanatorium reports and personal communications, was reviewed in each case.

In all cases considered in this study chest films showed either the appearance of a lesion not previously present or extension of a previously known lesion. Calcified primary complexes, however extensive, thickened apical caps, blunted costophrenic angles and small apparently obsolete nodules were not considered clinicaly significant,

and were not included. Supporting clinical evidence for activity included at least one of the following symptoms: cough, hemoptysis, fever, anorexia, weight loss and general malaise. In many cases acid-fast bacilli were demonstrated.

The tuberculin-test figures were derived from the original work sheets of the routine tuberculin surveys. The two-test-dose, intradermal method was used, the results being read in 48 hours. Induration of at least 5 mm. in diameter was used as the sole criterion of a positive test. Slightly over 30 per cent of students entering Harvard Medical School as nonreactors became tuberculin reactors before graduation.

Of 3,160 students from 1922 through 1945, it is known that 44 developed pulmonary tuberculosis—an over-all incidence of 1.4 per cent. Because of the incomplete case-finding program prior to 1936, however, undoubtedly many cases went unrecognized. Classes in which no organized case-finding program was conducted had an incidence of 0.9 per cent. In the group which had routine chest films and tuberculin tests on admission and in which many students has chest films in their fourth year, the incidence was 1.1 per cent. In classes in which routine admission chest x-ray examination and tuberculin tests were followed by annual re-examination of nonreactors by means of the tuberculin test, and of most positive reactors by x-ray, the rate was 2.2 per cent.

An incidence almost three times that known before the introduction of a case-finding program is in accordance with the experience of other medical schools.

The duration of disability caused by the pulmonary lesion was closely correlated with the severity of the lesion at the time of its discovery. Students with major lesions have had prolonged periods of disability and several failed to complete their medical education. Students whose lesions were detected by the appearance of symptoms nearly always showed major lesions, whereas just as regularly students whose lesions were detected by routine examination showed minor lesions. Only about half the students with minor lesions required sanatorium care. The average stay in these cases was 14 months.

The effectiveness of routine examination in the detection of early lesions makes frequent examination mandatory. The case-finding program, consisting of routine tuberculin tests and chest x-ray examination on entry and at graduation, has been progressively modified to the semiannual examination. During the period of annual examination, a large proportion of the lesions became symtomatic, and were thereby detected, before the time of re-examination. In addition, at least three students developed major lesions within a year of having been found to be nonreactors to the annual tuberculin test.

It is believed that six months represents the maximum interval that should be allowed to elapse between routine x-ray examination of tuberculin

Medical Advertisement



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Sam Hackney Reports on the U.S.A.

Sam Hackney and the missus just returned from a trailer trip around the country. They're tired, and glad to be home, but mighty impressed with what they saw.

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"Of course," says Sam, "you run into intolerance *from time to time. Individuals who criticize another's right to speak his mind; enjoy a glass of beer; or work at any trade he chooses. But those are the exceptions —and we're even tolerant of them!"*

From where I sit, more of us ought to make a trip like the Hackneys—to realize how America is bigger than its many differences... how *tolerance* of those differences is the very thing that makes us strong.

Joe Marsh

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reactors and tuberculin tests of nonreactors. When students previously nonreactors become reactors in the semiannual examination, x-ray examination of the chest should probably be done every six weeks for six months, and every three months for the remainder of the year. The rapidity of progression of the disease in medical students is such that many lesions become symptomatically evident, and are thereby detected, in intervals between routine examinations made only annually.

The adoption of a program in which surveys are made at intervals more frequent than once a year has led to the elimination of almost all symptom-detected cases and of all major lesions. It is believed that a semiannual examination represents the maximum interval for routine reexamination by x-ray or tuberculin tests not only for medical students but also for nurses and interns.

Although the number of cases of pulmonary tuberculosis discovered in the last two years of the medical-school course was four times as great as the number developing in the first two years, the incidence of acquisition of tuberculous infection as determined by the tuberculin test was about the same (12 or 13 per cent annually) for each academic year. This constant annual attack rate suggests that factors other than opportunity for infection are responsible for the fourfold increase in cases of pulmonary tuberculosis during clinical training.

Pulmonary Tuberculosis in Harvard Medical Students, Henry P. Brean, M.D. and Lewis W. Kane, M.D., The New England Journal of Medicine, September 5, 1946.

BOOK REVIEW

Primer for Diabetic Patients. By Russell M. Wilder, M.D., Ph.D., F.A.C.P., Professor and Chief of the Department of Medicine of the Mayo Foundation, University of Minnesota; Senior Consultant in Division of Medicine, Mayo Clinic. An outline of treatment for Diabetes with Diet, Insulin and Protamine-Zinc Insulin, Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. Eghth Edition, Reset. W. B. Saunders Co. Philadelphia and London. 1946. Price $1.75.

This is a short manual for the use of diabetic patients. It is clear, concise and quite complete in all points that the diabetic patient should understand. The book is well written and can be understood by any patient of average intelligence.

It is almost essential in a review of this book to contrast it with Joslin's similar manual for diabetic patients. Wilder's book is briefer and more limited to the essentials of the disease and its treatment. It lacks, however, some of the warmth and enthusiasm of Joslin's book.

This book is recommended not only for the use of patients but also for the use of physicians, for by reading this little primer the physician is better able to present the essential facts of diabetes in a clear and simple manner. J. W. W.



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JUNE, 1947

EDITORIALS

ROBERT MUELLER, M.D., PRESIDENT-ELECT

Robert Mueller was elected to the position of President-Elect of the Missouri State Medical Association on April 2, 1947, in Kansas City during the 89th Annual Session. He will serve in his present capacity until next year when, as it is customary, he will take office as President of the Association.

In selecting Dr. Mueller for such high office, the assembled delegates from the component county societies throughout the state were unanimous in their choice. In doing so, they used good judgment for, aside from honoring in this manner a faithful servant for his past efforts and accomplishments in behalf of the organized profession, their choice also assured that for another year the affairs of the Association will be guided by experienced, competent and willing hands.

Dr. Mueller was born in 1893. He attended local grammar school and McKinley High School in St. Louis. He is an alumnus of the College and the School of Medicine of Washington University where he was awarded the degree of Doctor of Medicine in 1917. This was the year this country entered into World War I and immediately upon graduation Dr. Mueller volunteered for overseas service with the U. S. Marine Corps. He served for eighteen months as Battalion Surgeon of the 6th Marine Regent and participated in the St. Mihiel, Champagne and Meuse-Argonne campaigns. He attained the rank of Lieutenant, senior grade. He was awarded the Navy Cross for "valor and meritorious service."

Robert Mueller's good fortune which brought him safely through the war continued after his return from overseas. He was successful in establishing himself in private practice. Likewise he was successful in his courtship of Miss Vera Hilfer; they were married in 1923. They are the proud parents of a charming daughter and a fine son.

In the field of practice Dr. Mueller has qualified himself for and has limited his work to general surgery. He is a member of the surgical sections of the staffs of the Deaconess Hospital, the Missouri Baptist Hospital, St. Anthony's Hospital and the Alexian Brothers Hospital. It is significant that in spite of the heavy demands of his private practice, Dr. Mueller has given freely of his time and skill to the sick and injured poor at the City Sanitarium and at the St. Louis County Hospital.



ROBERT MUELLER, M.D.

In the realm of medical education the President-Elect has also taken an active part. He has taught for many years at the School of Dentistry of Washington University, where he holds the academic degree of assistant professor.

In the civic affairs of St. Louis and St. Louis County Robert Mueller has always been ready to help. Aside from his charity work at the eleemosynary institutions he has rendered valuable public service through his efforts on the Social Planning Council, the Community Chest and in the creation and development of Group Hospital Service and the Missouri Medical Service Plan. He also did outstanding work as Chairman of the St. Louis Medical Society's Committee on the Control of Smoke in St. Louis. It was this committee which provided the scientific basis for the community's successful effort to free itself of this blight.

Robert Mueller's work in behalf of the organized medical profession is especially outstanding and noteworthy. In the affairs of the St. Louis Med-

ical Society he has been active for many years and has served as chairman of many important committees, as a member of the Council and as the society's president in 1943. He also has represented the St. Louis Medical Society for many years as a delegate to the Annual Session of the Missouri State Medical Association.

In medical activities on a state-wide level he has rendered extensive and invaluable services. Here again he has served as an active member of important committees and as a member of the House of Delegates. His outstanding accomplishments during the war as Chairman of the Military Affairs Committee and later as Chairman of the Committee on Medical Procurement have received national recognition. The successful completion of this vital program is indicative of the quality of Dr. Mueller's insight, judgment, initiative, tact and capacity for work, and represents a good example of his effective leadership.

We congratulate Robert Mueller on his election. We recognize that his new duties will deprive his family of his companionship on many occasions. We are grateful to Mrs. Mueller and the daughter and the son for their unselfish contribution and sacrifice. We trust that they will find a measure of recompense in the new honors which the Association has conferred upon the doctor. We extend our best wishes to Dr. Mueller for a most successful administration as President-Elect and as President in the ensuing year. As in the past, he will serve us well. Semper Fidelis!

PHYSICIANS LOCATING IN RURAL COMMUNITIES

As soon as hostilities were over and physicians began returning to civilian practice, the Association office devoted a great deal of its time to assisting returning physicians in entering or reentering practice. Being so well aware of the need of physicians in many areas in Missouri, these locations were stressed to physicians desirous of selecting locations for practice. In the last year and a half, approximately 175 physicians have entered practice in Missouri outside of the metropolitan areas. Since the majority of physicians returned to a previous location, this number entering new locations in outstate Missouri is considerable. And this is true not only in Missouri but throughout the country according to a recent report from the Bureau of Information of the American Medical Association. In a recent issue of *The Journal* the following was given:

"Already the Bureau of Information is sensing the trend of returned medical officers to move away from their recent venture in city practice to accept the opportunities of more active practice in smaller communities. From studies of physician distribution the general picture for location of physicians during the year following V-J day shows an adequate supply of physicians in most of the states but reflects a need for a more coordinated system of medical service in many of the rural areas.

"Leaders of the medical profession interested in better rural medical service are working with the farm organizations to outline a program of activity to develop in rural areas an appreciation of modern medical service and the responsibility of the community in planning a health program that will make the country physician a working partner toward decentralization of medical care from urban or large trade centers to the more rural sections of the population. The medical profession and the farm groups want to make rural medical service more adequate not only to the farmer but also to those who extend this service to the farmer.

"Dr. F. S. Crockett, Chairman of the Committee on Rural Medical Service of the American Medical Association, has recently announced that the Farm Bureau, the Farmers Union, the Cooperative Milk Producers' Federation and the Grange have each appointed two of their members to act in an advisory capacity to the Committee on Rural Medical Service of the American Medical Association. This committee will hold a meeting soon to outline and develop an active program for regional and local rural representatives. Thomas A. Hendricks, Secretary of the Council on Medical Service, is working out a plan with the Committee on Rural Medical Service to coordinate the council's and the committee's regional meetings in order to develop through workshop conferences the most adequate extension of medical service to all areas.

"In December 1946 the Bureau of Information began a survey through the local medical societies to determine the conditions and distribution of medical care in the rural areas of the country. Through the cooperation of the secretaries of the state and county medical societies, listings of areas which have requested physicians are available to help the doctor in selecting an area in which to establish his medical practice."

NEED FOR NURSES

That the role of the family physician in influencing young women to enter nurses training is an important one has been proven by a recent survey of the nursing schools throughout Missouri.

Among each physician's patients or acquaintances there must be one girl whom he can interest in nursing as a career. Will you not talk to her, and her parents? Tell them that nursing offers lifetime security and the very real satisfaction of serving humanity.

The national Advertising Council felt nurse recruitment was so important that they have made it their number one project for 1947. National publicity via radio, press, billboards and posters will blanket the nation in June and July; but, to be effective, this publicity must be followed up at the local level.

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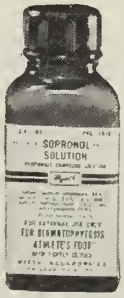
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St. Mary's Hospital, Kansas City.
Trinity Lutheran Hospital, Kansas City.
Missouri Methodist Hospital, St. Joseph.
St. Joseph's Hospital, St. Joseph.
Alexian Brothers' Hospital, St. Louis.
DePaul Hospital, St. Louis.
Evangelical Deaconess Hospital, St. Louis.
Homer G. Phillips' Hospital (Negro), St. Louis.
Jewish Hospital, St. Louis.
Lutheran Hospital, St. Louis.
Missouri Baptist Hospital, St. Louis.
St. John's Hospital, St. Louis.
St. Louis City Hospital, St. Louis.
St. Louis University School of Nursing, St. Louis.
St. Luke's Hospital, St. Louis.
St. Mary's Infirmary (Negro), St. Louis.
Washington University School of Nursing, St. Louis.
Burge Hospital, Springfield.
St. John's Hospital, Springfield.
Springfield Baptist Hospital, Springfield.

NEWS NOTES

Vilray P. Blair, M.D., St. Louis, was presented with a certificate of merit and a gold medal for scientific accomplishment at a meeting of the St. Louis Medical Society on May 20.

John W. Williams, Jr., M.D., Jefferson City, was reelected president of the Southern Branch of the American Public Health Association at a meeting in Memphis, Tenn., on April 23.

James R. McVay, M.D., Kansas City, was a guest speaker at a meeing of the Lions Club of Jefferson City on April 23. His subject was "The American Medical Association Plan for Extension of Medical Care."

Cyril A. Post, M.D., Poplar Bluff, spoke at a meeting of the Southeast Missouri Health Service in Poplar Bluff on April 10 on "What Your Health Association Should Mean to You."

Nathan K. Pope, M.D., Springfield, has become a member of the staff of the city health department of Springfield.

E. G. Claiborne, M.D., Camdenton, spoke at the March meeting of the Camdenton Parent Teachers Association on "Home Foundation of Health."

John G. Lapp, M.D., Kansas City, was guest of honor at a dinner given by his son, Harry C. Lapp, M.D., Kansas City, on April 15 at the Muehlebach Hotel. The occasion was the fiftieth anniversary of the receipt of medical degrees of Dr. Lapp, Senior, and thirteen others who came from several states for the reunion.

R. Emmet Kelly, M.D., St. Louis, was among the first arrivals at the Texas City disaster. He is medical director of the Monsanto Chemical Company whose plant at Texas City was demolished in the explosion of the Grandcamp.

Speakers who have appeared under the auspices of the Committee on Postgraduate Course recently follow:

M. Pinson Neal, M.D., Columbia, spoke before the Callaway County Medical Society on April 17 on "Diagnoses Commonly Missed in General Practice."

John A. Growdon, M.D., Kansas City, spoke at a joint meeting of twelve county societies at Butler on May 15 on "The Present Status of the Treatment of Veterans."

Paul O. Hageman, M.D., St. Louis, discussed "The Management of Arthritis" at a joint meeting of five county medical societies at Sikeston on May 1.

R. Lee Hoffmann, M.D., Kansas City, talked at a joint meeting of twelve counties at Butler on May 15 on "Common Urological Problems in General Practice."

Leslie D. Cassidy, M.D., St. Louis, spoke at a meeting of the Ninth Councilor District in Rolla on May 23 on "Chronic Gallbladder as a Medical Problem."

U. J. Busiek, M.D., Springfield, spoke at the meeting of the Ninth Councior District in Rolla on May 23 on "Summer Problems in Pediatrics."

William J. Stewart, M.D., Columbia, discussed "The Management of Fractures Encountered in General Practice" at the Ninth Councilor District meeting.

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for June and July, to which all members are invited, beginning at 1:00 p.m. each clinic, follows:

June 4. Miscellaneous.
June 6: Gynecology and Genitourinary.
June 11: Skin.
June 13: Breast.

June 18: Gastrointestinal.
June 20: Cervix.
June 25: Skin.
June 27: Head and Neck.
July 2: Miscellaneous.
July 4: Holiday.
July 9: Skin.
July 11: Breast.
July 16: Gastrointestinal.
July 18: Cervix.
July 23: Skin.
July 25: Head and Neck.
July 30: Bone and Lymphomas.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

H. E. PETERSEN, ST. JOSEPH, COUNCILOR

Mercer County Medical Society

The Mercer County Medical Society met on May 13 in the office of C. J. Laws, Princeton. Those present were T. S. Duff, M.D., Cainsville; C. J. Laws, M.D., A. S. Bristow, M.D., Robert B. Bristow, M.D., Marion Lambert, M.D., C. P. Pickett, M.D., J. M. Perry, M.D., Princeton. T. S. Duff, M.D., president, presided.

The following officers were elected: President, A. S. Bristow, M.D.; vice president, Marion Lambert, M.D.; secretary-treasurer, J. M. Perry, M.D.

The Marion Lambert Hospital was discussed and Dr. Lambert stated that the hospital would contain modern hospital equipment with trained personnel and would be open to all M. D.'s in the county and surrounding territory.

The Society voted unanimously to take its place in the meetings being held at Chillicothe and to sponsor the meeting on June 3. Dr. A. S. Bristow was appointed to notify the other societies and arrange a program for the meeting.

J. M. PERRY, M.D., Secretary.

A joint dinner meeting of Caldwell-Livingston, Grundy-Daviess, Carroll, Harrison, Linn, Mercer and Ray County Medical Societies was held at the Strand Hotel, Chillicothe, on April 29. The Linn County Medical Society acted as host at the meeting which was attended by thirty-six physicians and guests.

Morris B. Simpson, M.D., Kansas City, President of the Missouri State Medical Association, discussed "Prepaid Medical-Surgical Care and Hospitalization—the Voluntary Way."

A. B. Cleveland, Probate Judge of Caldwell County, spoke on "Medical Bills for Probate."

Charles Greenberg, M.D., St. Joseph, spoke on "The Relation of Urology to General Medicine."

The President of the Linn County Medical Society, E. F. Weir, M.D., Meadville, presided.

Another meeting of the group is scheduled for June 3 at Chillicothe under the sponsorship of the Mercer County Society.

C. A. CAMPBELL, M.D., Secretary,
Linn County Society.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on March 26 at 8:30 a. m. at the Health Center, St. Louis County Hospital, Clayton.

Lois Wyatt, M.D., reported a case of ruptured in-



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testinal diverticulum with resultant complications. The case was discussed by Julius Jensen, M.D.

Sigmund Tashma, M.D., reported on the endeavors of the committee on the annual dinner to obtain a speaker for that occasion.

On motion of R. A. Walther, Sr., M.D., the president was asked to appoint a committee to meet with the St. Louis Medical Society and the St. Louis Dental Society for arrangement of a dinner with a guest speaker.

A petition to the St. Louis County Court for the support of the county plan to purchase from the federal government the building known as the St. Louis County Health Center was presented by R. B. Denny, M.D. On motion of John D. Hayward, M.D., the Society went on record as favoring this plan.

Daniel L. Sexton, M.D., St. Louis, spoke on "Recent Advances in Endocrine Therapy." His paper was discussed by Drs. Roland Steubner, R. Holden, John O'Connell and Sigmund Tashma. The speaker was given a rising vote of thanks.

Meeting of April 23

The St. Louis County Medical Society met on April 23 at 8:30 p. m. at the Health Center, St. Louis County Hospital, Clayton.

Robert Kingsland, M.D., reported that the annual dinner on May 28 would be held at the Missouri Athletic Club. The secretary read the letter of acceptance from A. C. Ivy, M.D., who will be the guest speaker. His subject will be "The Nazi War Crimes of a Medical Nature."

Stanley Harrison, M.D., introduced a motion that the St. Louis County Medical Society concur in a plan to bring Dr. Hart Van Riper, medical director of the National Polio Foundation, to St. Louis for a meeting in June to address a joint session of the St. Louis County Medical Society and the St. Louis Medical Society. The motion carried.

Willard M. Allen, M.D., St. Louis, presented a paper which was discussed by Drs. Magness, Phillips, O'Connell, Hayward, Steubner and Backlar.

Martyn Schattyn, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society held a dinner meeting at Mountain Grove on April 18 with the following present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., R. W. Denney, M.D., H. G. Frame, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; Rollin H. Smith and A. H. Thornburgh, M.D., West Plains; G. Bruce Lemmon, Jr., M.D., and Joseph G. Siceluff, M.D., Springfield.

Dr. Lemmon spoke on "Diabetes" explaining some of the newer and simpler methods of sugar detection and relative significance of the blood sugar and sugar in the urine and points in treatment.

Dr. Siceluff discussed "Urinary Obstructions" and showed roentgen ray films showing obstructions in various parts of the urinary system, both from congenital deformities and from injuries and disease. He discussed various phases of some of the newer drugs as penicillin, streptomycin and the sulphonomides.

The next meeting will be in Cabool on May 16.

A. C. Ames, M.D., Secretary.

TENTH COUNCILOR DISTRICT

FRANK HALL, CAPE GIRARDEAU, COUNCILOR

The Cape Girardeau, Mississippi, New Madrid, Scott and Stoddard County Medical Societies held a joint dinner meeting at the Dunn Hotel, Sikeston, on May 1. Forty physicians attended the meeting which was sponsored by the Scott County Society.

Frank Hall, M.D., Cape Girardeau, Councilor of the Tenth District, discussed the necessity for cooperation of all physicians in the district to assure successful results from the various programs carried on by the organized profession.

Mr. Ray McIntyre, St. Louis, Field Secretary, Missouri State Medical Association, spoke briefly on Missouri Medical Service and on the Veteran's Care program for Missouri.

Paul O. Hageman, M.D., St. Louis, gave an interesting presentation on "The Management of Arthritis."

A. D. Martin, M.D., Secretary,
Scott County Society.

BOOK REVIEWS

Muscle Testing, Techniques of Manual Examination. By Lucille Daniels, M.A., Director and Associate Professor of Physical Therapy, Stanford University; Marian Williams, M.A., Assistant Professor of Physical Therapy, Stanford University, and Catherine Worthingham, M.A., Director of Professional Education, The National Foundation for Infantile Paralysis, Inc. Designed and Illustrated by Harold Black with 349 Diagrammatic Line Drawings. W. B. Saunders Company. Philadelphia and London. 1946. Price $2.50.

"Muscle Testing" is a manual for the examination and grading of the prime mover in relation to the principal joints of each segment in the body rather than a presentation of all the tests for any particular muscle or muscle group. It should be extremely helpful in all types of paralyses, not merely polio, and should be particularly helpful in analyzing movements in terms of specific muscular action.

The prime mover of the action is clearly illustrated by an anatomic drawing as are the position and procedures for the manual testing of the same muscle in each of the following accepted classifications: normal and good, fair, poor, trace and zero. Accurate description is given for each grading procedure in regard to the part to be taken by both the technician and the patient.

In some instances, the range of motion is diagramatically illustrated while in other cases it is adequately described.

The nerve supply, origin and insertion of the muscles are listed in chart form, easy to read and interpret. Of great value is the enumeration of the factors limiting motion. Should there be any accessory muscles, these also are listed. Substitution and the subsequent action are also noted wherever such may be possible.

A sequence for overall muscle testing to avoid too frequent turning of the patient with resulting fatique precedes the section on manual testing.

Here is a compact manual, actually on anatomy book, giving you all the necessary pointers on muscles and muscle testing, excellently illustrated, with additional space for your own pet tests or additional information.

J. M. S.

The Challenge of Polio. The Crusade Against Infantile Paralysis. By Roland H. Berg. Introduction by Basil O'Connor, President, The National Foundation for Infantile Paralysis, Inc. The Dial Press. New York. 1946. Price $2.50.

The author has presented a short biography of poliomyelitis. It covers a short history of polio, how research has been conducted, the present efforts directed toward determining etiology and transmission, the controversies of treatment and the efforts of the National Foundation of Infantile Paralysis.

The book is interesting and well written for public education.

J. J. C.

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WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

PRESIDENT'S MESSAGE

The Sessions of the Woman's Auxiliary to the American Medical Association in Atlantic City, New Jersey, will be held at the Hotel Haddon Hall. The opening session will be on Tuesday, June 10, at 9:00 a. m. The wives of all Missouri physicians are cordially invited to attend. Mrs. W. L. Allee.

DELEGATES TO AMERICAN MEDICAL ASSOCIATION MEETING

Following are delegates from the Woman's Auxiliary to the Missouri State Medical Association to the session of the Woman's Auxiliary of the American Medical Association: Mrs. W. L. Allee, Eldon; Mrs. W. E. Koppenbrink, Higginsville; Mrs. August A. Werner, Mrs. John J. O'Connell, Mrs. F. G. Pernoud, Mrs. Armand D. Fries, St. Louis; Mrs. E. H. Thiessen, Mrs. Harry M. Gilkey, Kansas City; Mrs. R. M. Haynes, Marshall; Mrs. W. H. Goodson, Liberty; Mrs. Paul Baldwin, Kennett; Mrs. W. C. Cheek, Springfield; Mrs. C. A. McBurney, Slater.

Alternate delegates are Mrs. Robert Schlueter, Mrs. N. J. Eversoll, Mrs. Richard A. Sutter, Mrs. C. V. Wilcox, Mrs. W. G. Becke, St. Louis; Mrs. S. F. Freeman, Springfield; Mrs. A. J. Campbell, Sedalia; Mrs. J. L. Washburn, Versailles; Mrs. David S. Long, Harrisonville; Mrs. C. T. Ryland, Lexington; Mrs. O. A. Carron, Perryville; Mrs. A. B. Sinclair, Jr., Kansas City.

ORGANIZATION ACTIVITIES

THE COUNCIL

The Council of the Association met in St. Louis on May 17 and 18 with the following present: H. E. Petersen, M.D., St. Joseph; W. F. Francka, M.D., Hannibal; J. W. Thompson, M.D., St. Louis; Otto W. Koch, M.D., Clayton; J. F. Jolley, M.D., Mexico; R. W. Kennedy, M.D., Marshall; C. Edgar Virden, M.D., Kansas City; Wallis Smith, M.D., Springfield; E. C. Bohrer, M.D., West Plains; Frank W. Hall, M.D., Cape Girardeau; Morris B. Simpson, M.D., Kansas City; W. A. Bloom, M.D., Fayette; C. E. Hyndman, M.D., St. Louis; Robert Mueller, M.D., St. Louis; R. E. Schlueter, M.D., St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. Raymond McIntyre, St. Louis; Mr. T. R. O'Brien, St. Louis.

The by-law adopted concerning junior membership was reviewed and a portion of the transcript of the minutes of the annual session was read which showed the by-law to read as follows: "Section 1. The annual dues shall be $8.00 and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one-half of the regular dues with all the privileges of active membership in the Association, and providing further that the annual dues of any member who is serving full time internship or residency in a hospital shall be one-half of the regular dues, and such members shall not be subject to any special assessments. . . ."

Mr. O'Brien read a letter from Mrs. H. C. Trippe of the Jackson County Woman's Auxiliary written to Dr. Bloom stating that the Auxiliary had a deficit of $154.56 from the annual session. Upon motion, it was voted to pay this amount to the Jackson County Auxiliary.

Mr. O'Brien reported a conference with Mrs. W. L. Allee, President of the Woman's Auxiliary. The question of a registration fee at the annual meeting was discussed. The Council decided that it should be suggested to the Auxiliary that the dues be raised to $1.00 a year and that there be no registration fee.

A scholarship fund held by the Auxiliary was discussed and the Council wished more information concerning the original designation on the money before it approved any action of the Auxiliary.

The following advisory committee to the Woman's Auxiliary was approved: Drs. W. H. Breuer, St. James; W. E. Koppenbrink, Higginsville; John O'Connell, Overland.

A letter from Dr. Ralph L. Thompson, St. Louis, thanking the Council and members for the silver platter which was presented to him at the Annual Session was read.

A letter from the Kansas City Society of Anesthesiology suggesting that the Association have a committee on anesthesiology was read. After discussion it was voted that the President appoint a special Committee on Anesthesiology.

Material from the A. M. A. concerning each state having a committee on national emergency medical service was discussed and it was voted that the President should appoint such a committee in Missouri.

Mr. McIntyre reported on meetings that had been held since the time of the last meeting of the Council and called attention to several that will be held in the near future.

Mr. O'Brien presented information on S. B. 259 which would abolish the Cancer Commission. Dr. Major Seelig and members of the Council discussed the bill after which it was moved and passed that the Council go on record that it opposes S. B. 259 and favors the maintaining of the function of the Cancer Commission as established by law.

The resolution on breaking the annual session into sections which was referred to the Council by the House of Delegates was discussed by all present. After discussion, it was moved and passed that the ideas brought out be given in detail to the program committee, that the executives in the state office work with the program committee throughout and that the program be approved by the Council. The majority opinion was against sections.

It was suggested that one person from the executive office be in the scientific session and be in charge of the arrangements and details during the session. It was suggested that Mr. McIntyre do this.

The question of having lay meetings at the same time as county society meetings was discussed together with the possibility of the Woman's Auxiliary assisting in the arranging of the meetings. This was left to the office for further study.

The Treasurer reported on the finances of the Association and moved that a $5,000 bond be purchased. This was passed.

Dr. Thompson presented a resolution in regard to schools of medicine establishing organizations for the practice of medicine to supplement income and suggesting in lieu thereof the establishing of a national fund for medical teaching and research. After discussion, it was voted to adopt the resolution in principle for rewriting before presentation to the A. M. A. A committee of Drs. Virden, Petersen, Simpson and Thompson were asked to consult with Dr. Schlueter for rewriting the resolution.

The following Committee on Publication was approved by the Council: Drs. G. V. Stryker, St. Louis, Chairman; V. T. Williams, Kansas City; David Lemone,



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SUMMIT, NEW JERSEY

Columbia; H. E. Petersen, St. Joseph; Fred R. Farthing, Springfield.

Dr. Kennedy and Mr. McIntyre presented the idea of preparing a map which would show the number of physicians, hospital locations and mileages and have this presented at meetings of interns and residents by selected physicians from rural Missouri as a means of interesting physicians in locating in rural areas.

The idea of having county health councils was presented, it being explained that these would be made up of representatives of various organizations and the public. It was stated that Mr. Starr of the Missouri Farm Bureau Federation was interested in such a plan. Upon motion, the Rural Health Committee and Mr. McIntyre were empowered to make arrangements for a meeting of representatives from various groups to discuss the possibility of such councils.

Dr. Goodrich made a brief report for the committee appointed to study correlating the Blue Cross and medical and surgical plans so that they would be more uniform. Dr. Goodrich reported that the committee was at that time having its second meeting and it was believed that the committee would work out all points so that a definite recommendation could be made to the boards of trustees of the different plans. Several points which had been covered were given as: number of contracts to be the same; rates to be the same; enrollment regulation to be 30 per cent in all plans; service charge to be the same; designated service areas; aligning of benefits on x-ray, x-ray therapy, minor surgery, tonsillectomy, obstetrics.

J. W. THOMPSON, M.D., Chairman.

BOOK REVIEWS

MENSTRUAL DISORDERS AND STERILITY, DIAGNOSIS AND TREATMENT OF, by Charles Mazer, M.D., F.A.C.S., Assistant Professor of Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania; Gynecologist to the Mount Sinai Hospital, Philadelphia, and S. Leon Israel, M.D., F.A.C.S., Instructor in Gynecology and Obstetrics, School of Medicine, University of Pennsylvania; Associate Gynecologist to the Mount Sinai Hospital, Philadelphia. Second Edition, Revised and Enlarged with 133 Illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, New York, London. 1946. Price $7.50.

This book contains valuable information regarding the sex cycle in the woman, and is understandably written. The first five chapters discuss the hormones of the pituitary and the ovaries and their relationship and influence in motivating the normal menstrual cycle. This is fundamental information, without which one could not understand the abnormal conditions for which the doctor is consulted.

In the succeeding chapters the etiology of the numerous menstrual disorders is rendered intelligible.

There is an excellent series of chapters in which sterility is considered. The endocrine, functional and mechanical factors in the male and female which prevent or interfere with the consummation of pregnancy are lucidly discussed.

This work is a valuable contribution to this section of endocrinology. A. A. W.

WOMEN IN INDUSTRY, Their Health and Efficiency, Issued Under the Auspices of the Division of Medical Sciences and the Division of Engineering and Industrial Research of the National Research Council. Prepared in the Army Industrial Hygiene Laboratory. By Anna M. Baetjer, SC.D., Asst. Professor of Physiological Hygiene, School of Hygiene and ublic Health, The Johns Hopkins University. W. B. Saunders Company. Philadelphia and London. 1946. Price $4.00.

This book answers one of the most frequently asked questions of the day of women in industry; namely, that women in peace time occupations will continue to increase, and it is estimated that in 1950, 16,000,000 women will be gainfully employed.

In this review an effort has been made to present the scientific facts which are known concerning the health and efficiency of women in relation to their employment and to summarize the information gained during the war. Some of the principal conclusions reached are that properly trained women are capable of performing almost all types of work nearly as well as men, except for excessive muscular work, and they make up for this by being better than men at jobs requiring manual dexterity and fine coordination.

It was found that women were ill more frequently than men, but their absences were shorter. Women are no more susceptible to occupational diseases than men. Gynecologic problems did not materially alter the ability of women to perform mental and muscular work.

To any industrial physician connected with such problems of women, this book has valuable information for the purpose of placement of women and it enables him to make a correct appraisal of the physical, mental and emotional characteristics of the applicants. W. H. D.

INTRACRANIAL COMPLICATIONS OF EAR, NOSE AND THROAT INFECTIONS. By Hans Brunner, M.D., Associate Professor of Otolaryngology, University of Illinois College of Medicine, Chicago. The Year Book Publishers. 1946. Price $6.75.

In the preface of this well organized and very readable book, the author sets forth his purpose and states the importance of a clear understanding of the subject. Even though chemotherapy has come into common usage, it may mask symptoms sufficiently to make diagnosis of intracranial complications more difficult. "Chemotherapy is of definite value in the treatment of intracranial complications; its influence in the prophylaxis of these complications is controversial. However, it is a fact that not infrequently chemotherapy of the primary condition alters the customary symptomatology and renders diagnosis and treatment of intracranial complications more difficult than before the introduction of these new therapeutic agents. Thus we are dealing in this volume with the problems that continue to deserve the attention of the otolaryngologist and the neurologist."

The first section, comprising approximately one fifth of the volume, consists of a comprehensive review of the surgical anatomy and physiology of the cranial contents and contains numerous pertinent illustrations.

The second section, embodying the remainder of the volume, is divided into five chapters which cover the clinical aspects of all of the inflammatory diseases of the intracranial structures resulting from extension of ear, nose and throat infections. The headings of these chapters are: "Inflammatory Diseases of the Dura Mater"; "Inflammatory Diseases of the Dural Sinuses: Septicemia"; "Inflammatory Diseases of the Leptomeninges"; "Brain Abscess"; and "Encephalitis." Each disease which may be classified under each of the chapter headings is thoroughly discussed as to pathology, symptomatology, prognosis and treatment. This section is illustrated adequately with photographs of clinical and autopsy specimens, reproductions of x-rays and line drawings. A bibliography is included at the

end of each chapter. The volume is well indexed.

The clear, systematic presentation of such a comprehensive clinical subject in a volume of 430 pages reflects the unusually fine teaching ability of the author. This volume is highly recommended as a reference book for the otologist's library, and should prove to be a valuable adjunct to medical libraries of all types.

J. W. F.

The Romance of Human Architecture. By Maurice Chideckel, M.D. Boston: Bruce Humphries, Inc. 1945. Price $2.00.

This is a short book written for public education. Each system and the comprising organs are discussed in an informative and interesting manner. J. J. C.

Cosmetics and Dermatitis. By Louis Schwartz, M.D., Medical Director, U. S. Public Health Service; Chief, Dermatoses Section, Division of Industrial Hygiene; Adjunct Professor in Dermatology, Georgetown University School of Medicine; Associate Clinical Professor in Dermatology and Syphilology, New York University College of Medicine; Consultant, Office of Price Administration; and Samuel M. Peck, M.D., Medical Director (R) U. S. Public Health Service; Associate Attending Dermatologist, Mt. Sinai Hospital, New York City; Attending Dermatologist and Syphilologist, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University; Diplomate of the American Board of Dermatology and Syphilology. Paul B. Hoeber, Inc. Medical Book Department of Harper and Brothers. New York. London. 1946. Price $4.00.

A small book devoted to the uses and abuses of cosmetic creations is offered by these well known dermatologists. The book becomes available to the profession and may be read with profit by manufacturers and those who apply them to the human skin. The authors point out that too little time and study is devoted to the anatomy and physiology of the human skin. It is doubtless a fact that many so-called cosmetitions could not name the layers of the skin or give an intelligent description of its components or a discussion of its functional offices. The increase of cosmetic dermatoses arising from the indiscriminate use of these products prompted the effort to rationalize the subject of "Cosmetics and Dermatitis."

The matter of allergic dermatoses is considered; attention is called to the fact that certain cosmetics are irritating to the skin, some acting immediately while others have a delayed action. The terms primary agents and sensitizers are used. A given cosmetic may be used with apparent impunity for many times, the course may be five days or longer before the user has become sensitized to one or more ingredients in a particular composition.

An interesting chapter on the early history of cosmetics brings out the interesting fact, viz., that the practice prevailed among the Egyptians, Babylonians and Grecian women. Depilatories, rouge and hair dyes were common among the upper class women. Xenophon, Pliny and Galen all left records of the use of personal adornments by colored paints and powders.

The volume comprises twenty-four short chapters concisely written in standard type and illustrated by photographs which greatly add to the clarity of the work.

It is made clear that cosmetics are not intended to be used as remedies for skin diseases; rather, it is pointed out that good cosmetics are friendly to the skin and add to its normal beauty and pleasing appearance beside acting in a protective role.

There is a concise digest of the work done by the Federal Trade Commission in its efforts to protect the public from false and misleading representations. Examples are the cases of hair dyes and tonics containing toxic coal tars, lead and sulphur.

The book is valuable and certainly unique. Its timely appearance will be appreciated by those who in any way are concerned with cosmetics or the therapy employed in aiding the sensitized skin. E. P. M.

Principles and Practice of Obstetrics. By Joseph B. DeLee, M.D., Late Professor of Obstetrics and Gynecology, the University of Chicago; Consultant in Obstetrics, the Chicago Lying-in Hospital and Dispensary; and J. P. Greenhill, M.D., Attending Obstetrician and Gynecologist, the Michael Reese Hospital; Obstetrician and Gynecologist, Associate Staff, the Chicago Lying-in Hospital; Chairman Department of Gynecology, Cook County Hospital; Professor of Gynecology, Cook County Graduate School of Medicine. Ninth Edition, with 1108 illustrations on 860 figures, 211 in Color. W. B. Saunders Company. Philadelphia and London. 1947. Price $10.00.

The text of this ninth edition has been practically rewritten along the lines begun in the previous edition. New chapters have been added, a few have been omitted or combined with others, several chapters have been replaced completely by new ones and all the remaining chapters have been rewritten and new material added.

Among the major changes in the text is the inclusion of additional material in the chapter on "Analgesia and Anesthesia" which now deals not only with the new analgesic drugs but also detailed descriptions with illustrations of direct, local and infiltration anesthesia and caudal analgesia.

A note-worthy change is that of printing the pages with the double column, which makes for greater ease in reading.

It is believed that this book would be of greater value as a textbook than as a reference book. E. L. D.

Medicine in the Changing Order, Report of the New York Academy of Medicine Committee on Medicine and The Changing Order. The Commonwealth Fund. New York. 1947. Price $2.00.

This is the report of the New York Academy's Committee, appointed in 1942 and consisting of forty-eight members, laymen and experts in medicine, dentistry, nursing. They have studied every phase of the existing problems which are at present confronting the medical and allied professions. The committee has gathered the information from all possible sources, and has crowded an immense quantity of valuable information into this small volume. There is also a very good index. That makes it useful as a reference work, which any doctor may lay on his desk or library table with profit to himself. R. E. S.

Courage and Devotion Beyond the Call of Duty, Being a partial record of official citations to medical officers in the United States Armed Forces during World War II. Second Preliminary Edition, July, 1946. Mead Johnson & Company. No charge.

The second preliminary edition as of July, 1946 (first, November, 1944), lists available citations to individual physicians and medical groups in the armed forces with a description of conditions for which the citation was made. Also included is a list of individual physicians and medical groups with their citations, but about which sufficient information is not available as yet. Lastly, there is a complete index of those receiving citations.

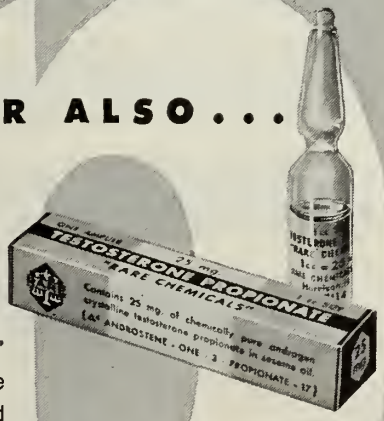
This is a book which would be of value primarily to a library and possibly to the family or friends of those who received citations. B. Z. H.

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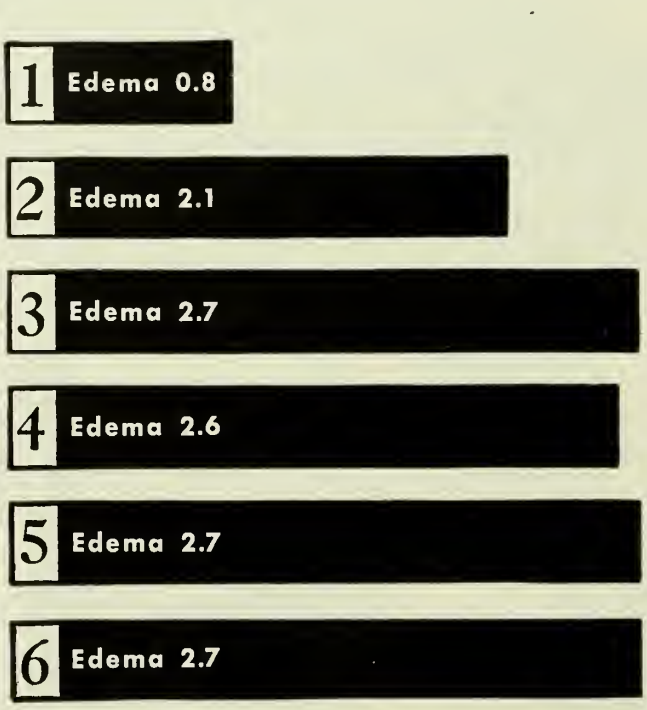
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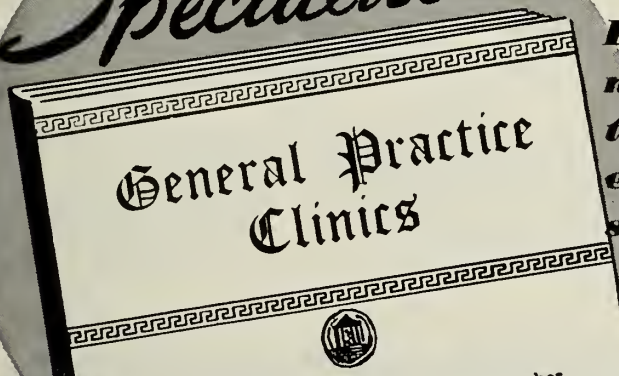
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**N. Y. State Journ. Med. 35 No. 11,590* ***Laryngoscope 1935, XLV, No. 2, 149-154*

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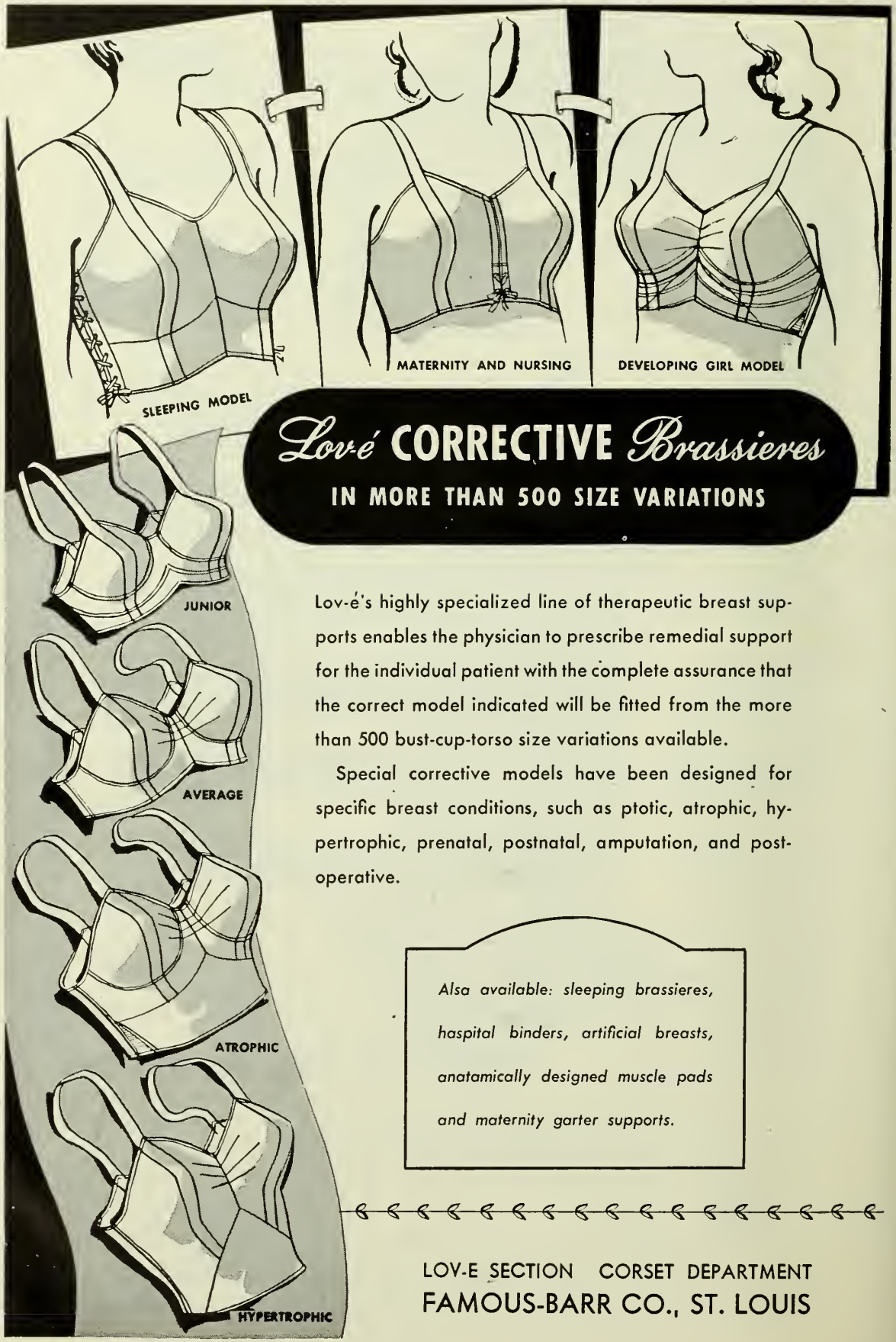
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"Early last fall, the magazines of this country—nearly a thousand of them, acting together—started an advertising campaign on Bonds. This, added to the continuing support of other media and advertisers, gave the American people the facts . . . told them why it was important to buy and hold U. S. Savings Bonds.

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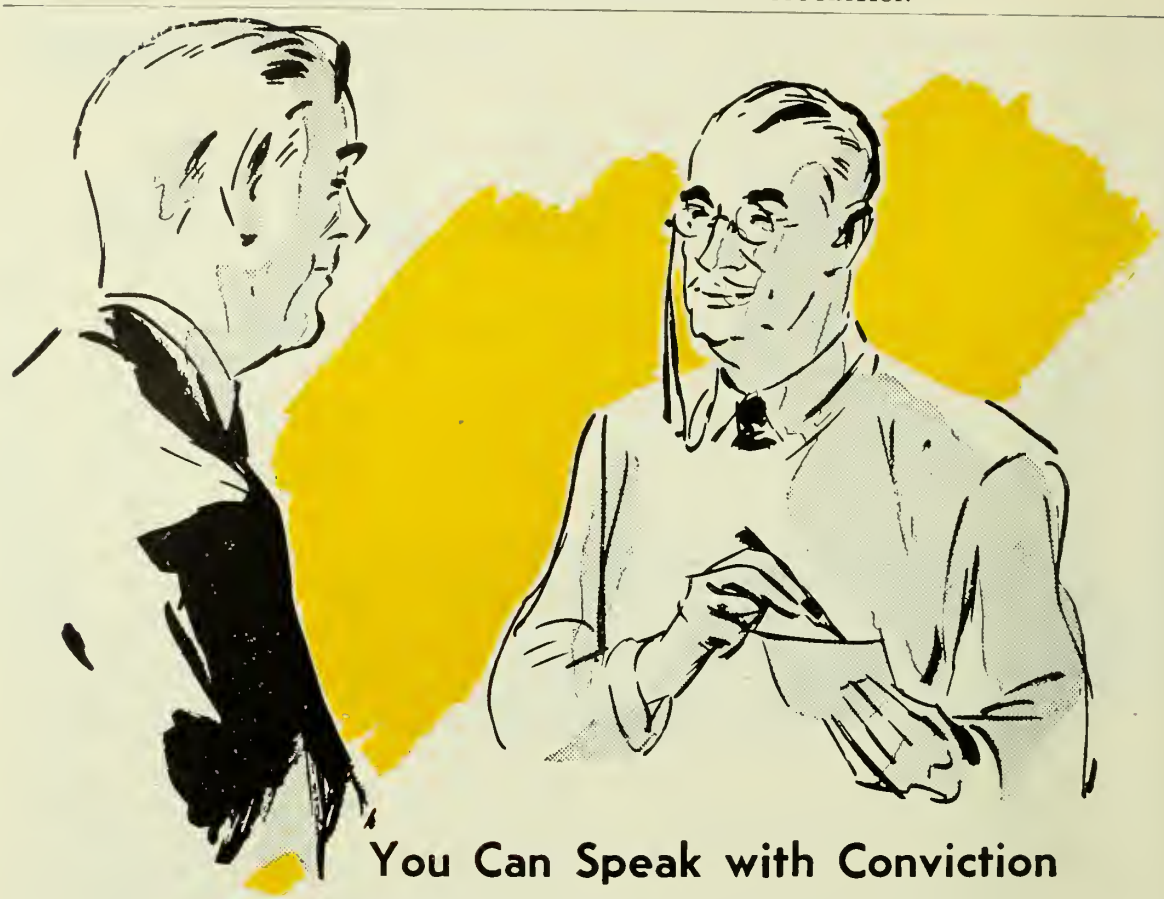
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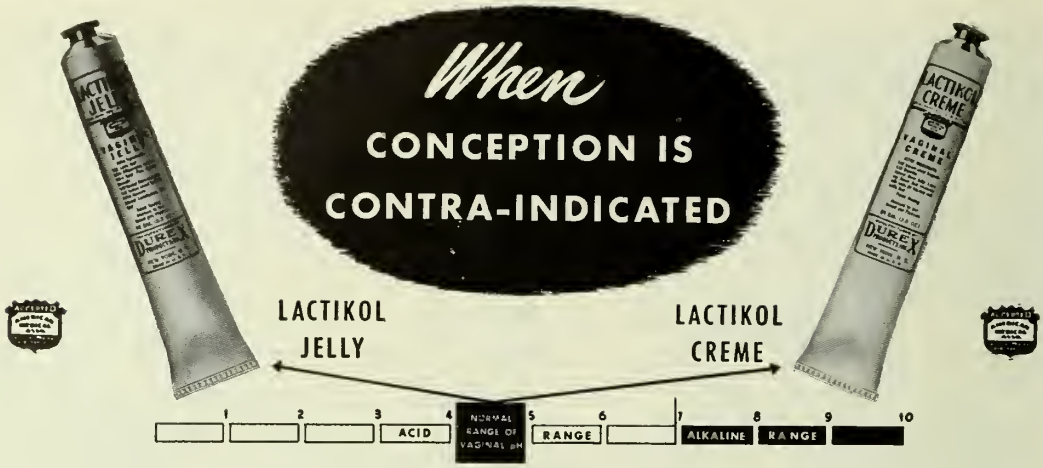
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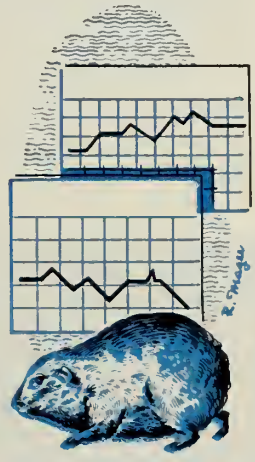
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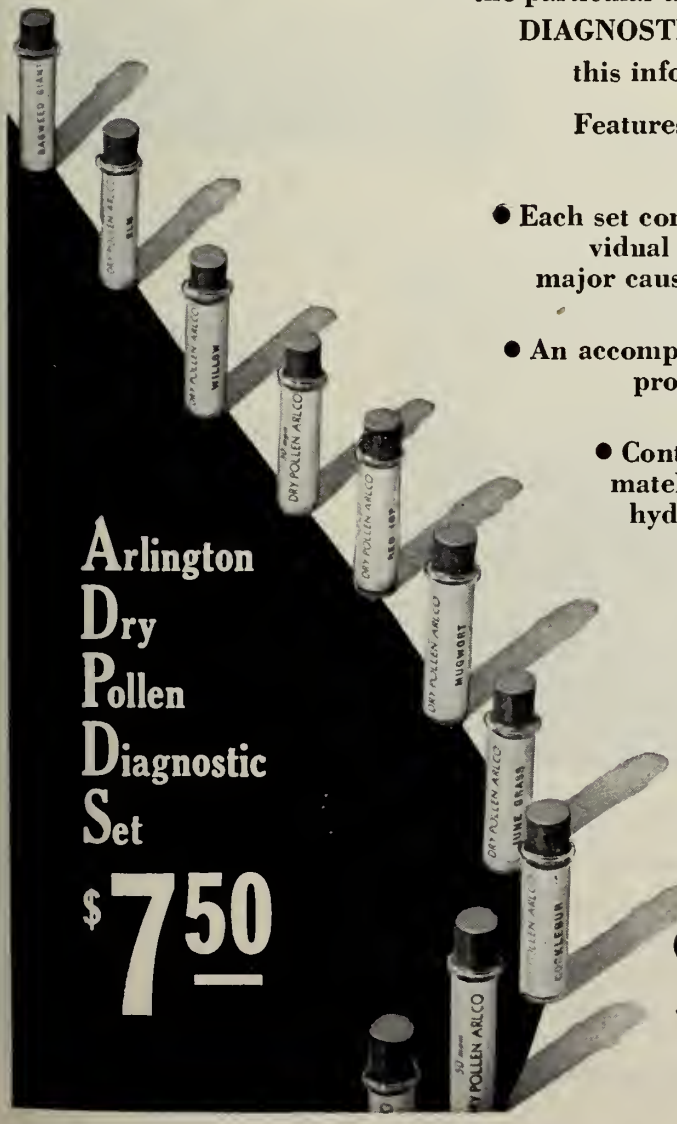
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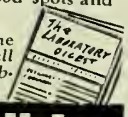
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INDEX TO ADVERTISERS

Abbott Laboratories 461
Ames Company 435
Ar-Ex Cosmetics, Inc. 458
Arlington Chemical Co. 459
Ayerst, McKenna & Harrison 397

Bilhuber-Knoll Corporation 450
Borcherdt Malt Extract Co. 458
Borden Company 451
Burroughs Wellcome & Co. 393, 449

Camel Cigarettes 399
Camp, S. H. & Company 396
Ciba Pharamaceutical Products, Inc. ..... Insert
Cook County Graduate School of Medicine 462

Duncan Laboratories 455
Durex Products, Inc. 452

Faith Hospital 454

Glenwood Sanatorium 452
Gradwohl School of Laboratory Technique 460

Hamilton-Schmidt Surgical Company 458
Hanger, J. E., Inc. 460
Harrower Laboratory 453

Isle, W. E., Company 454
Lilly, Eli & Company ..... Insert

Lov-e Brassiere Co. 446

M & R Dietetic Laboratories, Inc. 456
Major Clinic Association 389
Massachusetts Indemnity Insurance Co 457
Mead Johnson & Company 464
Medical Protective Co. 402
Merck & Company, Inc. 401
Milwaukee Sanitarium 427
Miscellaneous Announcements 462
Mullen Ambulance Company 454

National Dairy Products Corporation 391
National Pathological Laboratory 457
Norbury Sanatorium 450
North Shore Health Resort 460

Parke, Davis & Company 336, 387, 463
Philip Morris & Company 444
Physicians Casualty Association 457
Pogue, Mary E., School 458
Producers Creamery Company 437

Quincy X-ray and Radium Laboratories 458

Ralph Sanitarium 400
Rare Chemicals, Inc. 443
Robinson Clinic 454

Schering Corporation 439
Schmid, Julius Inc. 398
Searle, G. D. & Company 425
Smith-Dorsey Company 448
Stearns, Frederick & Company 429
Stokes Sanitarium 462

Upjohn Company 394
U. S. Brewers Foundation, Inc. 431
U. S. Savings Bonds 447

Wallace Sanitarium 454
Wander Company, The 395
Washington Institute of Medicine 445
Washington University School of Medicine 457
Winthrop Chemical Company 388
Worrell, Dorothy 462
Wyeth, Inc. 435

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No. 204 in a series of messages from Parke, Davis & Co. on the importance of prompt and proper medical care.



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DURING recent years there has been a sharp increase in the incidence of ulcer of the stomach.

Some doctors report that within eight years ulcer cases have increased by as much as 100%.

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SEE YOUR DOCTOR! If you have frequent stomach pains or "indigestion," don't dose yourself. You may get temporary relief from your symptoms, but the medication you use may actually make your ailment worse. See your doctor and let him decide the cause of your trouble. He alone is qualified to diagnose your case and recommend treatment. Ask his help at the first sign of something wrong.

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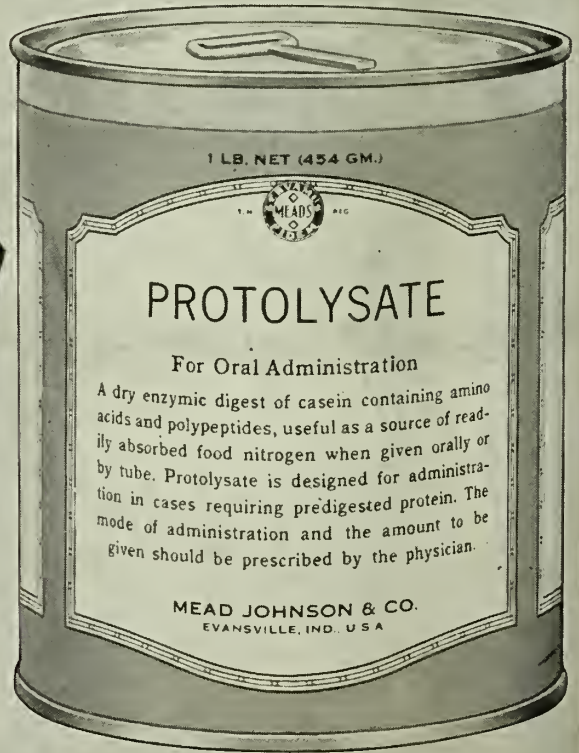
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JULY, 1947

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(Contents Index Page 469)

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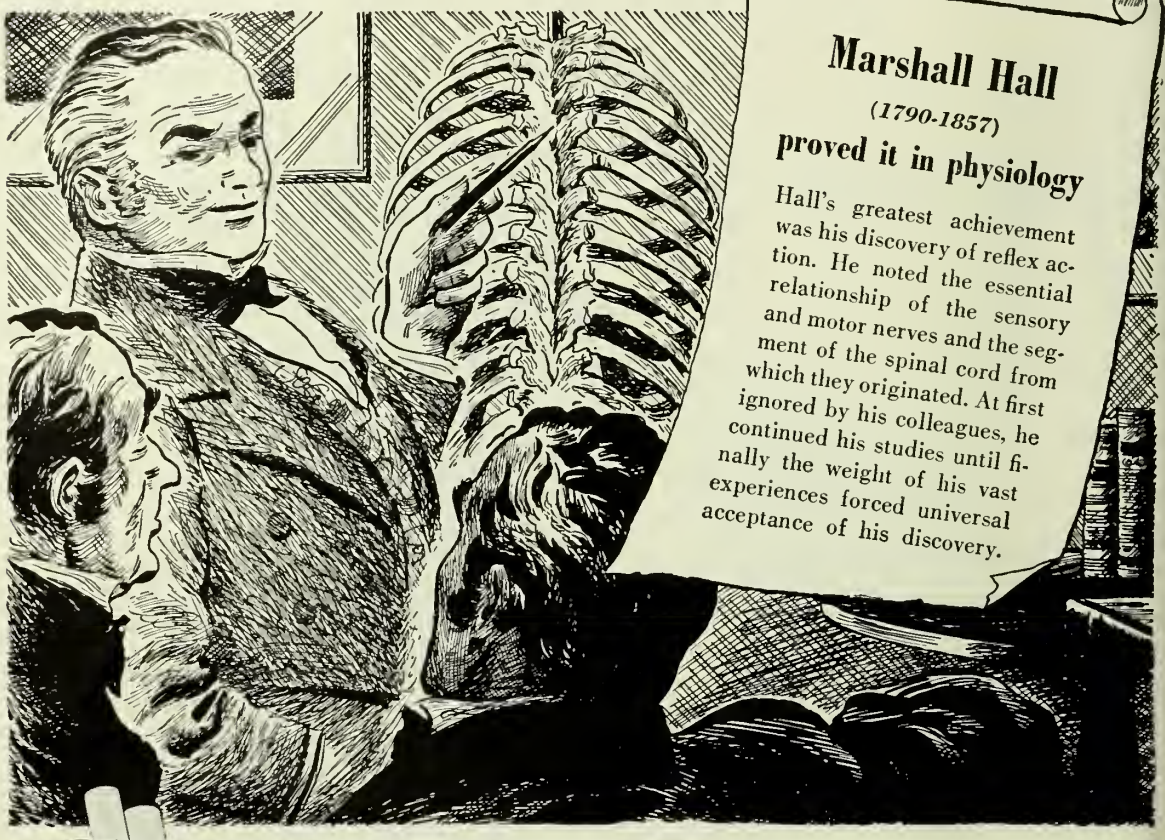
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CONTENTS

Contact Dermatitis. Richard L. Sutton, Jr., M.D., Kansas City, Mo. ... 481

Traumatic Rupture of the Intestine. Ralph Berg, M.D., St. Louis ... 484

Special Article—

The Barnard Free Skin and Cancer Hospital Research Report for 1946. E. V. Cowdry, St. Louis 485

Abstracts and Digests—

Apical Localization of Phthisis ... 488

Pastural Factors in Apical Tuberculosis ... 489

Editorials—

American Medical Association Centennial Meeting 490

Blue Cross, Surgical Care Celebrate ... 490

News Notes ... 493

Deaths ... 493

Miscellany ... 493

Society Proceedings ... 494

Woman's Auxiliary ... 496

Organization Activities—

Eighty-Ninth Annual Session of Missouri State Medical Association ... 496

Book Reviews ... 540

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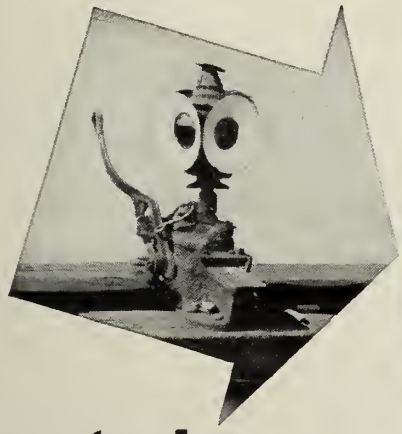
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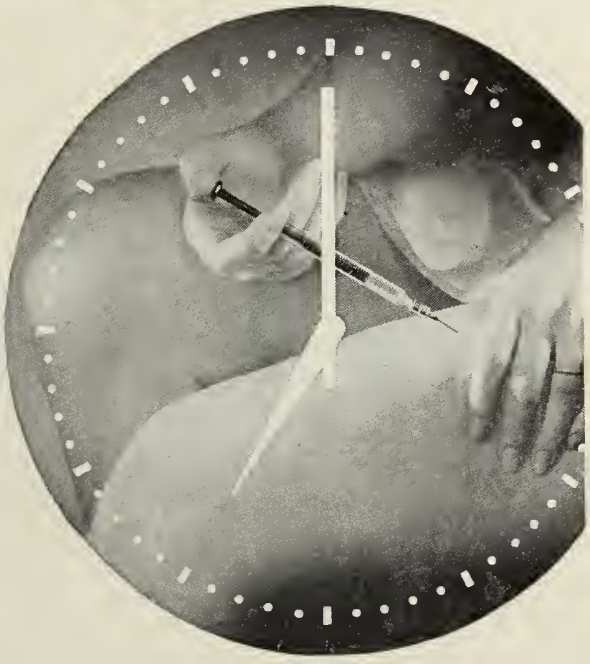
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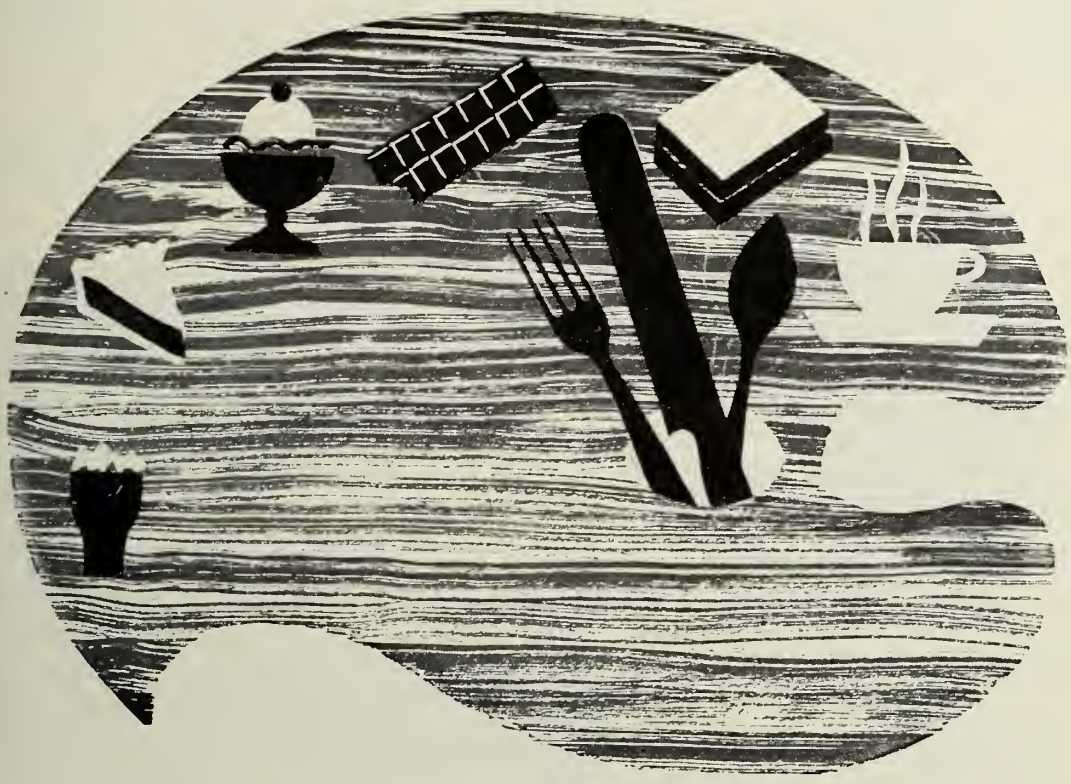
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CONTACT DERMATITIS

SIMPLIFICATION OF THERAPY AND OF THE SEARCH FOR CAUSES

RICHARD L. SUTTON, JR., M.D.

KANSAS CITY, MISSOURI

Symptoms.—Contact dermatitis is an inflammatory cutaneous reaction to chemical substances when they have touched and injured the skin. All degrees of inflammation from simple hyperemia to gangrene may be encountered. The lesions are at first itchy, then erythematous, and limited to the regions touched by the irritant. Later they become papular and vesicular, but pustular only if secondarily infected. The manifestations may spread beyond the borders of the zone of original contact becoming, perhaps, widespread and scattered over the body, depending on conveyance via fingers or clothing and on the degree of cutaneous reactivity to the contactant.

The eruption which results from a single contact with an offending substance is a self-limited one. It disappears spontaneously within a few days or weeks. Repetitions of contact are, however, often the case. The response of a sensitized skin may become progressively more intense.

The clinical picture and the history that can be obtained from the patient intimately depend on the time intervals involved, because daily association with a deleterious agent evokes continuous and chronic disease while occasional flares result from and denote corresponding occasional contacts. Thus investigation requires intelligent questioning of the patient, for periods of freedom from disease are as significant as periods of activity.

Continuous or frequently repeated exposure results in disease which reaches maximum intensity and either remains unchanging or spreads in extent. Dermatitis may become universal, a form of exfoliative dermatitis, and this may take place suddenly, suggesting that degree of sensitivity may increase abruptly.

Dermatitis due to a contactant might at different times in one person manifest a variety of morphologic forms, ranging from bullous inflammation to lichenification. Such morphologic and out-of-date names as erythematous eczema, vesicular eczema, chronic eczema and fissured eczema are not sufficient to identify the disease and to satisfy the need for interpretation. "Eczema" is defined as dermatitis of unknown cause. Dermatitis always has a cause, although this may be difficult to identify.

I include within contact dermatitis, or dermatitis venenata, inflammations of the skin provoked by contact, whether the agent is a "primary irritant" which acts with substantially equal effect upon all skins (nitric acid, lye) or is a "sensitizer" which acts with various intensities on different skins because of hypersensitivity. Some chemicals are both primary irritants and sensitizers.[1]

"Hardening," the phenomenon of development by the exposed individual of ability to withstand contacts at one time injurious to him, is commonplace, especially in industry. The workman stays on the job despite his dermatitis unless the injury is extreme, and he has perhaps nine chances out of ten of becoming hardened.[2] The private practitioner is likely to see only the patients who for unknown reasons fail to harden.

In acute cases or initial reactions the abrupt onset, location, itchiness, erythematous and vesicular character of the eruption and ill-defined margins serve to make the diagnosis of contact dermatitis easy. But to unearth the particular cause is less simple. The longer the dermatitis has endured the more difficult it is, as a rule, to discover the injurious agent. Flares give clues; contact must have been made a few hours before the flare. Location is significant, for only certain things touch certain places. An instructive example of identification, shoes being the particular cause, was given by

Presented Oct. 8, 1946, before the Kansas City Southwest Clinical Society, Kansas City, Mo.

Associate professor of Dermatology and Syphilology, University of Kansas Medical School.

Niles.[3] Contact dermatitis is never primarily pustular. Secondary infection from the skin flora, contaminants or focal sources render it pustular when it is. "The patient's understanding and cooperation are of primary importance in the search; in the usual case it is imperative for the physician to give the considerable time necessary for the patient's enlightenment."[4]

Diagnosis.—This is proved by (1) cure of the disease when the agent is completely avoided, and (2) identification of the agent by positive reaction to it.

Complications.—These include (1) secondary infections, bacterial, mycotic or both; (2) focal infections, which often alter the disease, rendering it chronic and recalcitrant; and (3) previous treatment, involving medicinal irritation, sometimes roentgen ray burns.

Pruritus with excoriation may be medicinal dermatitis, as from ammoniated mercury.

Lichenoid areas may represent seborrheic dermatitis, chronicity or perhaps medicinal dermatitis.

Papular, vesicular, and pustular lesions with folliculitis may be staphylococcic parasitism (abetted by the mechanical effect of salves), exogenous, or from oral, prostatic or other focus of infection.

Vesicular oozing and crusting may be streptococcic parasitism, exogenous, or from oral or other focus of infection.

Chronic vesicular and scaly dermatitis may be mycotic complication from toes, vagina, or other sources; medicaments; or mixed coccic infection.

Treatment.—The basic principle is to remove the cause. One must give the patient symptomatic relief while the skin heals. No medicine can force an injured tissue to heal, so effort is to be directed at keeping something off the skin, not at putting something on it.

Removal of the cause is followed, usually within a few days or weeks, by recovery. Repeated attacks are expected until the cause is identified and contact is avoided, but a known and carefully avoided agent may be met accidentally or inadvertently. Efforts to desensitize are in general less successful than avoidance. Sensitization may disappear if contact is avoided for many months, or the degree of sensitivity may diminish greatly.

When one knows the cause, chemical neutralization of some irritants can be accomplished: sodium thiosulfate is the antidote for iodine and chromates, sodium bicarbonate for formol, and potassium sulfite soap for TNT, for example.[5] Prevention of contact may be obtained by discarding objects, such as shoes or furs. Often it is difficult to convince a patient that one solitary, momentary contact is sufficient to undo the benefits of two weeks of isolation. Sometimes mechanical means (gloves, petrolatum, boots) or chemical means (baths, soaks, detoxifying agents) may be used to interrupt the contact; or the sufferer may learn what not to touch, or where not to spread the contact; or a workman may be shifted to a different job so that his contacts are different. Protective ointments are a last choice, not a first one, in industrial dermatitis, although they encourage the worker to wash.[6] Such solutions are easy, comparatively, for the irritant is known.

Technic of Eliminating and Identifying an Unknown Irritant.—When the irritant is not known—and this is the situation when a patient is first seen—there need be no haste to identify the cause. One can count upon cure, temporary at least, if one simply removes all possible causes. Unless the patient is considerably distressed by his disease, he ordinarily will not be willing to be hospitalized, but hospitalization, with complete control of the environment, separating the patient from his home, job, clothing, hair tonic, toothpaste, garden, sofa cushions and insect powder, is an effective way to bring irritation under control.

When chemical injury by contact has occurred, and the injurious agent is not known, the logical approach to cure may be put in algebraic form. Let chemical items a, b, c . . . be all the chemicals that touch the skin; then $a + b + c + \ldots =$ disease. Let no item touch the skin unless it is known to be harmless. Then $0 = 0$, so that, all contacts except trustworthy ones being removed, disease will disappear within one to two weeks, rarely longer. If disease does not fade steadily but does flare after the effort has begun, one may know that, while the theory is right, the practice has failed, and effort must be redoubled to make certain that an unidentified injurious agent will be eliminated.

After elimination has succeeded, then, of a, b, c . . . , at least one item is injurious. The status of the patient at this moment, perhaps one or two weeks after the initial instruction in the avoidance of everything, is the relieved but disaccommodated status of freedom from disease and isolation from all contacts. The task is half finished, and the patient's skin is now ready to serve as the testing ground for the items previously eliminated. If contact with all were replaced at once, no information would be gained from a subsequent flare. But if a is replaced, and twenty-four hours later b is applied, and later c, according to a written tabulation of items to be tested by schedule, then identification of the poisonous item is straightforward, for, on contact with that item, the disease flares, usually first evidenced by itching which starts within four to eight hours. If a, b, c . . . are so replaced in their usual form of contact at twenty-four hour intervals, then classification of a and b and c into "good" and "bad" items is a matter requiring rarely more than two weeks of purposeful effort.

Note that patch tests are not undertaken, and that one is not required to crystal-gaze the cause before the cause has been eliminated. Originality is claimed for this point of view. The technic is exemplified by the following:

HYPOTHETICAL CASE

October 1. Mrs. A requests medical service because of itchy eyelids. The skin of the lids is wrinkled, leathery, flaky, excoriated, but not exudative. Disease has existed with no great change in intensity and no conspicuous flares for three years. There is no other disease or area of dermatitis. The interview follows.

"Madam, your skin disease is caused by some chemical which touches your eyelids. Germs are not concerned, and your interior, food or function, is not pertinent. No medicine exists which will make your eyelids heal. You will be cured, and you can only be cured, by avoiding that which on touching your skin poisons it. You and I, at this moment, do not know what poisons you."

"Then doctor, how can I escape the poison?"

"If nothing touches your face except chemicals which are certainly harmless, then surely your disease must fade and disappear. In order to eliminate all contacts except the certainly harmless ones, I want nothing to touch your face for a week except the following six things: (1) air (you cannot avoid it, but you do not need to contaminate it by scattering soap powders indiscriminately), (2) water (it is harmless—things in water are often harmful, but water is not), (3) petrolatum (I have recognized only two people in fifteen years of dermatologic practice whose skins would not tolerate petrolatum), (4) old cotton garments for day and night wear (garments six months old at the time your disease began, for we can trust such garments) and old towels, sheets and pillowslips (do not allow residual soap, starch, bluing, bleach, cleaning fluid, antiseptic rinses, or other contaminants to remain in these; but the cellulose of which they are composed is trustworthy), (5) hands, which must be free from soap, lotions, creams, nail lacquer and medicines, (6) the utensils and foods you use in eating (silver and glass are harmless, and you have to eat)."

"My face may be touched by nothing but air, water, petrolatum, cotton or linen, and uncontaminated hands? I may eat and drink what I wish? All right, doctor, but how do I wash, or clean my teeth, or relieve my itching if I cannot apply a medicine?"

"I have listed things you may touch, a short positive list. I have not tried to itemize the multitude of things you may not touch, for the negative list is not short and is not determinate. Wash with water and dry with a towel. You will not be as clean as you like, but you will be as clean as you need to be. Cleanse your teeth with table salt or baking soda. After all, you will only have to live this way for a week or so. As for relief of itching, use just enough petrolatum to keep the skin from feeling as if it would crack, and lay on your itchy lids a towel wrung out in cold water. Apply the cold compresses for as long as you desire any time you desire. They will relieve you as well as any medication one could choose, and they cannot harm you. Among the many things you may not touch are soaps and cleansers of any kind, powder, rouge, creams, perfumes, shampoo, medicines, hand lotion and nail lacquer. Do not put any medicine in your ears, eyes, nose, mouth, rectum, vagina, or on your skin. Since we do not, in your case, suspect lipstick, you may use this—a patient's morale must be considered—and you may use cornstarch for face powder if you wish."

"What makes me get well, doctor, if I do nothing but avoid a poison?"

"An injured skin is analogous to an injured bone. In treating a broken bone, basically the physician puts its ends together and leaves it alone. It heals itself. Your skin will heal when nothing interferes with its healing. The cold compresses and petrolatum and perhaps some aspirin and sodium amytal will do for you what morphine will do for the patient with the fracture."

"Well, I will give your plan a try."

"If you understand the purpose, you will probably cooperate faithfully. Please let me see you a week from today."

On October 8. Mrs. A returns, stating that her eyelids did not change much for the first four days, then improved steadily. There was no flare, itching became less, and the cold compresses and petrolatum did prove quite comforting. Improvement is plainly visible.

"We may judge," the doctor says, "that you have successfully avoided the poison, although this has inconvenienced you to some extent. We must now arrange for you to live normally instead of living in chemical isolation. Of the many things you have been denied, what would you like to put on your face first?"

"Soap, then rouge, powder and cold cream. If I could use these and have my hair shampooed, I would be satisfied."

"We must plan these contacts," says the doctor, "so that if any of them intensifies your disease we will know which did it. Write a list of items to test, and test one each day, designating of course the particular brand of toilet article you propose to try. Apply one item each day in the manner in which you ordinarily apply it. Let me see you when your disease flares up. Do you understand your instructions?"

On October 12. Mrs. A returns, her lids swollen, red and itchy.

"Doctor," she says, "I used soap during the afternoon of our last interview, rouge the next day, and powder the next, without trouble. But last night I applied my favorite cold cream as I retired. This morning my lids were again swollen and itchy."

"You and I now know, Madam, that this brand of cold cream poisons you," the physician explains. "You will get over this flare in a few days. Use the cold water compresses as you did before. Since we have identified a cause—perhaps the cause—it would now be appropriate to give you a little x-ray therapy to hasten your relief. When you have cleared up, try Blank's brand of cold cream. THE JOURNAL accepts this firm's advertising, which claims that few people are allergic to its products. Seldom indeed do I find a person being poisoned by more than one chemical, although it is not rare for an individual to meet his poison in several different guises. Take for example, Mrs. B whose poison was nitrocellulose. A few years ago, her spectacle frames, the handles of her brush and comb, and her patent leather slippers and handbag each poisoned her. When we finally worked that problem out, she later flared after handling ping pong balls. As for you, however, I surmise that your troubles are over."

"Doctor, my appreciation knows no bounds."

"Your cure was accomplished, Mrs. A, by prescribing nothing for you, with meticulous care."

SUMMARY

"Contact dermatitis," uncomplicated, designates simply a skin injured by chemicals. It heals if and when injury is prevented. Medicines do not make it heal. Practical and logical treatment requires first the restriction of contacts to those substances which are certainly innocuous. If this effort succeeds, the disease fades without flare. The healed, or healing, skin is then subjected to contact, systematically, with chemicals which are open to suspicion. Flare then identifies a poison, which is subsequently completely avoided. This method, which appears to be irreducibly the simplest and most efficient approach, makes it possible, without use of patch tests or guesswork, to cure and to identify the cause of puzzling cases in only a few weeks.

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TRAUMATIC RUPTURE OF THE INTESTINE

RALPH BERG, M.D.
ST. LOUIS

The following case of traumatic intestinal rupture is reported because it demonstrates a number of points of fundamental surgical importance.

CASE REPORT

Mr. J. W. D., aged 67, a contractor, entered Lutheran Hospital at 10:45 p. m. on May 29, 1946.

Present Illness.—At 3:00 p. m. on May 29, 1946, while sawing lumber, the board slipped. The patient tripped on the sawbuck and fell flat on the ground, striking his abdomen. He immediately experienced such severe pain that a local physician had to give him a hypodermic of morphine. His pain was especially severe on the left side of the abdomen. There was no nausea or vomiting.

Past History.—The patient had a foreign body removed from his right eye six years previously. This was followed by blindness in that eye. For the last eight years, the patient had bilateral reducible inguinal hernias.

Positive Findings of Physical Examination.—Tenderness to palpation was noted all over the abdomen, especially in the left lower quadrant. The patient had a reducible inguinal hernia. Rectal examination was normal. The temperature was 99.2 F., pulse 88.

Laboratory Examination.—White blood count, 19,800; juvenile 3 per cent, stabs 39 per cent, segmented 52 per cent, lymphocytes 6 per cent. The urine was negative for sugar and albumin. Roentgen ray examination disclosed no air under the diaphragm.

Operation.—At 11:00 a. m. on May 30. On opening the abdomen purulent fluid was encountered. Exploration revealed a generalized peritonitis. In the ileum a jagged perforation was found. This was closed with a Dulox intestinal suture. Ten grams of sulfathiazole were placed in the abdomen. The abdomen was closed after placing three rubber drains; one to the site of perforation and one to each lower quadrant.

Postoperative Course.—Temperature following operation reached 105.6 F. (rectal). This rapidly dropped to 100 F. by June 1. During the first five days the patient had continuous Wangensteen suction and was given 40,000 units of penicillin intramuscularly every four hours. By June 14, the temperature had reached normal. The patient was discharged on June 23, 1946.

COMMENT

As in most of the reported cases there was no evidence of external injury, yet the injury was severe enough to cause perforation of the intestine. Counsellar and McCormack[1] have explained such an occurrence in several ways: First, a crushing of the intestine that is forced against some fixed structure such as the spine or pelvic bone; secondly, by a tangential blow on the abdomen causing the bowel to be torn from its attachment and often resulting in a tear of the mesentery; and, third, by bursting from increased intraintestinal pressure exerted by fluid or gas caught in the bowel between angulations of the wall. In the experimental animal it has been noted that if the abdominal muscles have been stretched the strongest blow caused no injury. Only when the abdominal muscles were lax could a blow cause an injury.

The existence of a latent period between the time of injury and the development of severe symptoms and signs has been emphasized many times in the literature. The patient here reported entered the hospital in comparative comfort. Morphine played some part in this but it usually is not thought of as lasting so long. After a night of comparative comfort the patient awakened the following morning with abdominal pain and showed on examination marked muscle spasm and rigidity. Poer and Woliver[2] have advanced several reasons for this: First, there may have been a bruising of the intestinal wall sufficient to cause an area of sloughing; the slough separates several hours or days later and it is at this time that symptoms first appear. Secondly, peristalsis may be inhibited by the injury, an exudate seals the opening; when food is eaten stronger peristalsis ensues, the area then gives way. Thirdly, leakage may be prevented by the well known response of the small intestine, i. e., a rolling out of the mucosal layers. It is this latent period which may give the surgeon a false feeling of security, thus delaying the operation by several hours. Such a delay may double the mortality rate. Poer and Woliver reported a 70 per cent mortality rate in those cases in which the diagnosis was delayed more than twelve hours in contrast to a 35 per cent mortality rate in those cases in which prompt operation was carried out.

Of all the symptoms, pain is the most important. Often the appearance of pain, that is, sweating, facial expression and so on may be more important than the patient's verbal expression of pain. The pain is diffuse and constant at first, but later may localize. Shock may follow. Nausea and vomiting may be present. Of all the signs, rigidity of the abdominal muscles is probably the most constant and most important sign, especially when this is combined with an increasing pulse rate. Exploration may then be warranted. Hunt and Bowden[3] noted that continued vomiting after recovery from shock is a valuable early sign. Cope[4] stressed the value of rectal examination, that is, eliciting tenderness due to the gravitation of irritating fluid into the pelvis. In this connection, one may mention the observation of Inlow[5] who noted that the patient may feel so well that he is dismissed from the hospital. Then, after two weeks, the symptoms may recur with great severity and the patient die of a perforation unless promptly operated on. It has been suggested that dietary indiscretion or intermittent distention may be a factor in causing such late perforation. It is important,

therefore, that all patients who are treated conservatively be kept at rest on a very light diet and be in readiness to enter a hospital on a moment's notice. Once the diagnosis has been made, the treatment is immediate exploration and suturing of the opening. Hunt and Bowden feel that the entire intestinal tract must be explored because if the openings are multiple and very close together, a loop of bowel may have to be resected.

CONCLUSIONS

1. Intestinal perforation must be considered in every patient who has a history of an injury to the abdominal wall. The injury need not be very severe.
2. If the diagnosis is made, immediate operation is recommended.
3. In those cases in which the operation is not deemed advisable or necessary, the patient must be kept at rest and watched for two weeks or longer.
4. A latent period must not deter the surgeon from operating if the clinical signs are still present.
5. Morphine should be used cautiously in an undiagnosed abdominal condition.

2253 Nebraska.

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SPECIAL ARTICLE

THE BARNARD FREE SKIN AND CANCER HOSPITAL RESEARCH REPORT FOR 1946

E. V. COWDRY
ST. LOUIS

Barnard Hospital is not, like other privately managed St. Louis hospitals, *en rapport* with the whole community. It is known to the indigents whom it serves free of charge and to civic leaders of the St. Louis United Charities; but not to the vast majority of citizens able and willing to pay for medical service, and for this reason excluded because they cannot be admitted under the hospital's charter. The United Charities is unable to finance research in the hospital and this isolation from people who could help is serious.

WOMEN'S ADVERTISING CLUB OF ST. LOUIS

The lay and medical boards of the hospital realize this handicap, and are, therefore, gratified by a wholly unsolocited effort of the Women's Advertising Club of St. Louis to overcome it. This organization of outstanding women in the community has not only contributed the proceeds of its annual Gridiron Dinners to cancer research at Barnard Hospital in 1945 and in 1946, but has decided to do the same in 1947. The money made available has been employed to finance cancer research in lines which otherwise would not have been explored, and it has ben given in a spirit of trust and of confidence neither dictating the exact mode of expenditure nor asking for reports. The skilled publicity of the Women's Advertising Club is obviously of assistance in making known to the community the research done in the hospital.

UNITY OF RESEARCH

In last year's report, the unity of research in the laboratory and the clinic was emphasized, both animated by a spirit of discontent with things as they are and by a determination to gain more knowledge. The major cancer research project of the hospital which, briefly stated, is to discover how cancer develops in previously normal epidermis was described and shown how investigations based on animals extend into the clinic and, conversely, how other clinical studies expand into the laboratory where procedures not possible on patients can be carried out. In a word, productive integration of research was stressed, as in this report first place is given to increasing integration of the hospital with the community.

RADIOACTIVE ISOTOPES

These are being used more and more as tools in the previously mentioned major project. For some years, experiments have been under way to measure the uptake of radioactive phosphorus during epidermal carcinogenesis. These were started by N. A. Womach and R. L. Simoes and have been carried on by C. Carruthers, C. Costello and Martin Kamen; but results are not ready to be announced.

Dr. W. L. Simpson deserves credit for planning experiments based on the use of radioactive carbon (C^{14}) as a tracer .The first step is to incorporate C^{14} into the carcinogen. After the carcinogen has been marked in this way, its presence can be detected by a Geiger counter. The second step is to divide mouse epidermis, to which carcinogen has been applied, into fractions by centrifugation at low temperature. The fractions collectable are those of chromosomes, whole nuclei and various parts of the cytoplasm. It is wished to discover with which fraction the carcinogen becomes associated in the production of epidermal cancer.

This project was so well received by the Manhattan Engineer District that Barnard Hospital was given first place when the Government made radioactive isotopes available for medical research at an impressive ceremony at Oak Ridge last July. The actual research involves teamwork between workers in three institutions: Dr. Paul Rothmund, of the Kettering Foundation at Antioch College, who is synthesizing the C^{14} into the carcinogen; Dr. Simpson, at Barnard Hospital, who will apply the carcinogen thus labelled to the skin of mice, and prepare the epidermal cell fractions mentioned, and Dr. Martin Kamen of the Mallinckrodt Institute of Radiology, who, by measuring the radioactivity of the fractions will discover with which the carcinogen becomes associated.

A third investigation utilizing radioactive isotopes

is planned by Dr. A. I. Lansing. It has been discovered that, in epidermis treated with the same carcinogen, methylcholanthrene, uniformly used in the hospital's major project, the calcium nucleoprotein phosphorus ratio sharply decreases. By supplying radioactive calcium (Ca^{45}) to the reacting epidermis, it is hoped to discover whether the decrease is due merely to loss of calcium already present or whether calcium continues to enter the epidermis and is more rapidly used up. The Manhattan Engineer District has approved the project and has supplied the necessary Ca^{45}.

It is beginning to be realized how favorably Barnard Hospital is situated for such studies on cancer with radioactive isotopes. Those distributed by the Manhattan Engineer District are made for the Government in the Clinton Laboratories of the Monsanto Chemical Company at Oak Ridge. The Company's Director of Research, Dr. Charles Thomas, was appointed to the Board of Directors of the Hospital in 1946. His advice is distinctly worthwhile. All of the hospital's isotopes studies are planned in advance with the expert assistance of Dr. Martin Kamen of the Mallinckrodt Institute of Radiology. Washington University, under Chancellor A. H. Compton, is prominent in the study of nuclear physics. It is therefore easy to obtain first hand and up to the moment information of any developments possibly affording new lines of attack on the cancer problem.

In arranging for Dr. Shields Warren to give the annual Barnard Hospital Lecture last November, the hospital provided a considered statement of both the destructive and therapeutic effects of radiant energy. Dr. Warren, as Captain in the Navy, was one of the first medical men to visit Hiroshima and Nagasaki after explosion of the atomic bombs and he continued his studies at Bikini. His account, first presented at this lecture to the St. Louis Medical Society, will be published in the *Journal of the American Medical Association* so that all members of the profession will profit by it.

DR. C. F. KETTERING'S VISIT

In September, Dr. Kettering, vice president of the General Motors Corporation, directing head of the General Motors Research Laboratory, and the only out-of-town member of the Board of Directors of Barnard Hospital, spent two days in St. Louis, and discussed the research program in detail. He was entertained at a special dinner held in his honor at the St. Louis Country Club. After the dinner, he spoke informally, and most eloquently, on the subject of research to the directors and staff members. Dr. Kettering revealed the C. F. Kettering Foundation as the donor which has helped to finance cancer research anonymously during the last six years. It developed during a conference the next morning, that both he and the hospital staff had the same ideas about a method for strengthening the direction of research in the hospital. The plan proposed is to make a board of five research advisers responsible for research. Of these, three are to be experts in cancer research outside of St. Louis, one retiring and being replaced by another expert each year. The remaining two are to be the Chief of Staff and the Director of Research of the hospital, both ex-officio with the latter as Chairman of the Board. It is expected that the outside members of the board, receiving modest honoraria, will bring the best advice that can be obtained in the United States, and will give force, continuity and stability to the program. The Board of Directors of the Hospital which, of course, has final authority in all matters pertaining to it, has adopted a new set of by-laws establishing this Board of Research Advisers, and now the three out-of-town advisers are being appointed.

The next development of significance for research was increase by the C. F. Kettering Foundation of its annual contribution to the research budget from $10,000 to $25,000 retroactive to July 1, 1946. This makes it more possible to carry out the major cancer research project of investigating how cancer develops in previously normal epidermis and especially to discover the site of action of the carcinogen marked with C^{14}.

U. S. PUBLIC HEALTH SERVICE

The cancer arm of this service is the National Cancer Institute established by Act of Congress in 1937. The year beginning July 1, 1946, was the seventh consecutive year of financial assistance by the Institute to Barnard's cancer research project, the difference being that in the year mentioned, the amount was increased from $5,000 to $25,000. Cooperation in the actual doing of research with the National Cancer Institute is close and helpful. The Director of Research of the hospital is a Consultant to the U. S. Public Health Service. The project of epidermal carcinogenesis dovetails with researches in the Institute on the geographic frequency of skin cancer in man and on the origin of epidermal cancer in mice, because the Institute workers use a physical carcinogen, ultraviolet light, while the Barnard workers employ a chemical one, methylcholanthrene.

TEAMWORK WITH INDUSTRIES

Several industrial problems have been brought to Barnard for solution by the Shell Oil Company, the Standard Oil Company of Indiana and the Wrigley Company.

The very effective aid given in cancer research by the Monsanto Chemical Company has been described. During 1946 other organizations have come to the hospital's support in non-financial ways.

In measuring the changes in properties of mouse epidermis as cancer develops in it, complicated chemical analysis are necessary which would cost thousands of dollars to make, and for which the staff is altogether inadequate. The Eli Lilly Company of Indianapolis has offered to make these determinations of amino acids and is now doing so.

Several considerations lead to the thought that a component of the much publicized Russian ACS Cancer serum may be the enzyme known as antihyaluronidase. Theoretically, this enzyme would act to increase the resistance of the ground substance of connective tissue to the spread of cancer therein. This idea was given to Parke, Davis Company about two years ago, and the Company as well as Drs. Simpson and Gopal, of the Barnard staff, have since worked independently on it. The Schering Corporation of New Jersey gave the hospital a free start by contributing a supply of hyaluronic acid. Late in 1946 the Parke, Davis Company sent Dr. Rodney to the hospital to compare notes. The plan now is to assign Dr. Rodney to the Barnard staff for intensive experiments.

The Mallinckrodt Chemical Company, through Dr. Thorpe, has invited Barnard to test out in our clinics a new pain-killing drug originating in Germany which may be far more effective than morphine in treatment of advanced cases of cancer. This welcome invitation has been formally accepted, and arrangements are being made.

ADDITIONAL WORKERS

During 1946 the hospital is to be congratulated on adding to its full time research staff Dr. Eugene Roberts, a chemist previously in the Manhattan Engineer District. Drs. A. I. Lansing, J. H. Van Dyke and B. B. Geren, and Mr. M. H. Au of Washington University worked with the staff part time; Dr. Warren Smith, just out of the Navy, for six months; Dr. A. R. Gopal-Ayengar of India, eighteen months; Dr. R. L. Simoes of Brazil, one year; Col. Kung Si-kun and Major Liang Hsu-mu of the Chinese Army arrived in September for a period of one year; and Mr. Chu, Chi-hsuin Ulric was on the research staff for the whole year and, like Dr. Roberts, will continue.

RESULTS SECURED

Thus far the conditions favoring research have been briefly noted. To describe the actual advances published in 1946 is more difficult. A glance at the list of scientific contributions given at the end of this report shows a healthy breadth of view on the part of the staff.

The major cancer research project, already referred to, has been advanced in several ways. In the early stages of epidermal carcinogenesis induced in mice by cutaneous applications of methylcholanthrene the concentration of desoxyribonucleic acid in the reacting and hyperplastic epidermis is reduced below that of normal untreated epidermis and this reduction is also a feature of the resulting transplantable cancers. In the same early stages the water content of hyperplastic epidermis increases from a normal of 60.3 per cent to about 66.5 per cent. This increase in water is maintained for fifty days with remarkable constancy until cancers begin to break loose in which there is a further increase to an average of 81.7 per cent. The biotin content of the reacting epidermis is decreased sharply. The level in the epidermis of maximum mitotis frequency falls from the spinous to the basal layer. The policy of cautiously extending these observations on mice to human tissues in the clinic has revealed interesting similarities and differences in the mineral and nucleic acid contents of epidermis during carcinogenesis.

Many researches have been carried on only in the clinic. The studies on epidermal sensitivity to penicillin are fundamental and of immediate interest. Likewise improvements in the diagnosis of acute appendicitis and knowledge of the symptomatology of acute obstruction of the ileum will be helpful. Plastic surgery is treated by a master and the paper on tumors of the testis records many significant observations. The management of advanced cancer is an ever present problem well discussed. As usual in Barnard Hospital mycology is well represented in published papers which illustrate how clinical medicine is supported by laboratory investigation.

Obviously the investigations actually published in 1946 do not accurately picture research done during the year. There is always a lag in publication. Numerous important advances are, therefore, not expressed in this list of papers. Among them are studies on dusting powders for surgeons' gloves. The discovery of a powder to replace talcum is a major achievement and it is also an example of a solution of a problem in clinical surgery by animal experimentation. Another departure consists of measurements of enzyme activity in the epidermis of mice in the course of epidermal carcinogenesis.

EVENING RESEARCH CONFERENCES

During the last year the following speakers and subjects were presented: January 28. Willard Allen: "Estrogen Inhibitory Influence of Progesterone." H. B. Steinbach and Florence Moog: "Localization of Enzymes in Intracellular Granules."

February 11. Robert Moore: "Testicular Carcinoma." R. L. Simoes, C. J. Costello, and C. Carruthers: "Uptake of P_{32} in the Phospholipid Fraction of Mouse Epidermis Undergoing Carcinogenesis Induced by Methylcholanthrene."

March 25. John H. Bittner: "The Milk Factor in Cancer."

April 29. A. R. Gopal-Ayengar: "Cytochemical and Cytological Studies of Intact Nuclei and of Isolated Nuclear Fractions During Carcinogenesis." C. Carruthers and V. Suntzeff: "Cytochrome Oxidase and Succinic Dehydrogenase Determinations During Methylcholanthrene Epidermal Carcinogenesis."

May 27. Robert Elman: "Protein Therapy in Cancer Patients." R. L. Webb: "Moving Pictures of Lymphatic Vessels in Action."

September 30. C. F. Sherwin: "Maintenance of Arm Function in Cancer of the Breast Surgery." A. H. Conrad, Jr., and J. W. Bagby: "Dermatology in Foreign Lands."

October 28. James F. Nolan: "Use of Radioactive Cobalt for Gamma Radiation." E. V. Cowdry: "Ageing of the Skin."

November 25. V. Suntzeff: "Role of Ageing in Carcinogenesis." John E. Hobbs: "Endometriosis."

EXPANDING COOPERATION IN CANCER RESEARCH

Within the hospital in the work day by day, members of the staff help each other. In the city, the association with Washington University School of Medicine grew so close that in 1946 affiliation was seriously discussed.

In the State of Missouri the Ellis Fischel Cancer Hospital at Columbia, which owes its origin to members of the staff of Barnard Hospital, is controlled by the State Cancer Commission of which Dr. M. G. Seelig of the Barnard research staff is vice chairman. Also, within the state, Dr. Jorstad, one of the surgeons on the clinical staff, has served as chairman of the executive committee of the Missouri Division of the American Cancer Society.

On the national scale, the members of the staff have endeavored in 1946, more than in any other year, to play their part in the improvement of conditions under which medical research is carried on. This was done through representation of the Hospital on the Board of Directors of the American Cancer Society, the National Cancer Foundation and the American Association for Cancer Research. The Hospital served twice during 1946 as host for meetings of panels of the Growth Committee of the National Research Council, which is financed by the American Cancer Society. Members of the staff have conferred repeatedly with officers of the U. S. Public Health Service concerning the phraseology of cancer research bills now under consideration by Congress.

And on the international Level, representatives of Barnard Hospital have cooperated with many others vitally interested in Cancer Research in organization of the Fourth International Cancer Research Congress to be held in St. Louis September 2 to 7, 1947. Dr. M. G. Seelig is Chairman of the Publicity Committee; Dr. A. N. Arneson is Chairman of the Local Arrangements Committee, and E. V. Cowdry is President of this Congress. Barnard Hospital will be, in effect, the local host and it will thus become oriented in the wide world of cancer research.

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4. Cowdry, E. V.; Van Dyke, J. H., and Geren, B. B.: Localization of Stratum of Maximum Mitotic Frequency in Epidermal Methylcholanthrene Carcinogenesis in Mice, Cancer Research **6**:620-624.
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9. Gottschalk, Helen Reller, and Weiss, R. S.: Epidermal Sensitivity to Penicillin, Arch. Dermat. & Syph. **53**:365-371.
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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACTS

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 7, July, 1947.

APICAL LOCALIZATION OF PHTHISIS

No discussion of human tuberculosis and its management is complete or convincing unless it takes into account the fact that, in its inception and throughout much of its course, phthisis in adults is confined to the upper third of the lungs. Most members of white and many members of yellow racial groups are almost immune to tuberculosis except in this region. It is a remarkable fact that, even after the sputum and gastric washings contain bacilli consistently, pulmonary lesions for years may be limited to the upper third of the lungs.

Explanations of this curious predilection for the apex have been unsatisfactory. Those who have most consistently urged bed-rest for the treatment of phthisis seem unconcerned with the apical localization and its significance in the pathology and therapy of tuberculosis.

The relation of man's erect posture to the physiological functioning of the lung is usually ignored. Recently published data on blood pressures in the right ventricles of human hearts show that when a

tall, long-chested individual is standing or sitting the pressure of the column of blood from the right ventricle to the apex of lungs is equal to or greater than the mean arterial pressure in the pulmonary arteries. Thus the flow of arterial blood will be greatly restricted or even absent at the apices of the lungs of most adults while they are in the erect posture. Nor at such times is tissue fluid or lymph produced by filtration in this area since it requires nearly 15 mm. Hg pressure to overcome the difference in osmotic pressure between the plasma and the pulmonary tissue fluid.

As a result of the decreased flow of blood addition of carbon dioxide to and removal of oxygen from alveoli in the apical region will be minimal. Tubercle bacilli reaching this tissue will be in an optimal atmosphere to support their metabolism although this is probably not an important factor in apical localization.

As long as the subject is sitting or standing, the pulmonary arteries can bring few antibodies to the apical region and removal of bacterial products by lymph, or dilution by diffusion into the blood will be almost nil. Only when the patient is recumbent will these tissues be protected against accumulation of toxic substances. Removal of bacteria to the lymph nodes will be suspended during most of the waking hours, as will be replacement of antibodies and of monocytes from the blood.

In view of these facts, it is not remarkable that active tuberculosis so regularly begins in this region, or that it shows a predilection for the tall, long-chested individual and the lively young people who get a minimum of sleep. Lack of rest is important in that it gives the bacilli the maximal number of hours of optimal growth conditions and the tissues the minimal number of hours when the neutralization and dilution of toxic products, and the supply of antibodies and blood-borne phagocytes are as adequate at the apices as elsewhere in the lungs.

The great frequency of silicotic lesions at the apex also may be due to the fact that dust particles reaching this region will be removed by phagocytes less rapidly, and the injurious substances will be diluted and removed more slowly than in other parts of the lung.

This explanation of apical susceptibility is borne out by the statistics on the relationship of pulmonary tuberculosis and heart disease. Where the pulmonary circulation is depleted, as in cases of pulmonic stenosis, the incidence of active tuberculosis is high. Where there is pronounced mitral stenosis and the pulmonary circulation is engorged, cases of pulmonary tuberculosis are a rarity. This is not a matter of academic interest only. If the explanation given above is correct, obviously the ideal treatment of the early apical lesion is complete recumbency for most of the 24 hours. Clinicians who insist on "complete bed-rest" should realize that propping the patient up in bed for more than half an hour at a time interferes with the correct postural management.

So long as bed-rest remains an empirical and nonspecific form of therapy, it will be difficult to enforce it on intelligent people who feel well. An understandable, physiological explanation will make their cooperation more certain. To every adult with an apical lesion the hazards of the erect posture and the value of recumbency should be stressed. However, complete bed-rest, with its attendant discomfort and higher cost of nursing care, may not be superior to many hours of recumbency with brief periods out of bed.

Prolonged bed-rest will be better borne if numerous and gradually lengthening periods of sitting up or strolling about can be alternated with recumbency. A consideration of the pathogenesis of the apical and subapical lesions suggests that this may be sound practice in patients not prostrated by disease.

Apical Localization of Phthisis, William Dock, M.D., American Review of Tuberculosis, April, 1946.

POSTURAL FACTORS IN APICAL TUBERCULOSIS

The theory that apical tuberculosis is due to postural ischemia accounts for its frequency in those young adults, studious or playful or both, who get little rest and are continuously erect 14 to 20 hours daily. If accepted, this theory also explains why bed-rest alone is effective in so many of these cases but of much less value in those with pulmonary basal lesions or tuberculosis of the kidney, epididymis or skin. When patients are propped up in bed to read, ischemia of the apex is not abolished. The effectiveness of bed-rest is thus greatly increased by outdoor exposure during the day, as the breezes and bright light discourage reading and promote appetite and sleep by stimulating the skin and tiring the eyes. Where patients are outdoors during the day they spend the maximal number of hours quiet and completely recumbent. However, it seems not impossible that brief intervals out of bed for meals and to facilitate nursing would not unfavorably affect the "cure" and make it less demoralizing and costly.

The new understanding of apical tuberculosis will make such therapy as complete recumbency easier for patients to accept. While awaiting specific antibiotics capable of controlling this disease, physicians will welcome a reasonable explanation for the pathogenesis of apical tuberculosis and for the therapeutic method which is still the main reliance in dealing with the commonest cause of prolonged disability and of death among young adults.

Editorial, Journal of the American Medical Association, July 13, 1946.

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JULY, 1947

EDITORIALS

AMERICAN MEDICAL ASSOCIATION CENTENNIAL SESSION

The Centennial Session of the American Medical Association convened at Atlantic City, Monday, June 9. It undoubtedly was the biggest medical meeting of all time with more than 16,000 Fellows registered. Physicians from many foreign countries attended and participated in the program.

Roscoe L. Sensenich, M.D., South Bend, Indiana, was elected President-Elect and will take office next year. Edward L. Bortz, M.D., Philadelphia, was installed as President. Dwight H. Murray, M.D., Napa, California, and E. J. McCormick, M.D., Toledo, Ohio, were elected to the Board of Trustees.

Missouri delegates as usual were given important positions as members of reference committees. W. L. Allee, M.D., Eldon, served as a member of the reference committee on General Practice of Medicine, and James R. McVay, M.D., served as a member on the reference committee on Emergency Medical Service.

James R. McVay, M.D., Kansas City, was reelected by acclamation a member of the Council on Medical Service.

The 1948 Session of the American Medical Association will be held in Chicago, the 1949 Session in Atlantic City and the 1950 Session in San Francisco.

BLUE CROSS, SURGICAL CARE CELEBRATE*

At a dinner meeting on May 5 the Blue Cross Hospital Service of Kansas City and the Surgical-Medical Care plan of Kansas City celebrated another anniversary with appropriate jubilation over a successful 1946-1947 season.

Representatives of hospital groups, of professional organizations and of the laity were present to add their voice of approval and appreciation. Surgical-Medical Care has grown (in the last four years) from around 25,000 to almost 150,000 members; Blue Cross Hospital Service has expanded from about 30,000 to over 200,000 members, in slightly under one decade. This phenomenal growth attested the popular demand for such coverage, it speaks highly of these organizations and their directing personnel; and, it affords abundant rebuttal to those who say that such cooperative ventures are bound to certain failure.

This page often has pointed out weaknesses in the voluntary prepayment plans for medical and hospital services, invariably with a constructive, though critical, attitude. We have predicted that these plans are vulnerable and will fail if they cannot reconcile differences in fee schedules and premiums, if they cannot iron out debated payment rates to hospitals, if they ever start "to practice medicine" by hiring specialists, or, if the guiding interests ever desert the high plane of public service, which has obtained up to now, for a more commercial spirit.

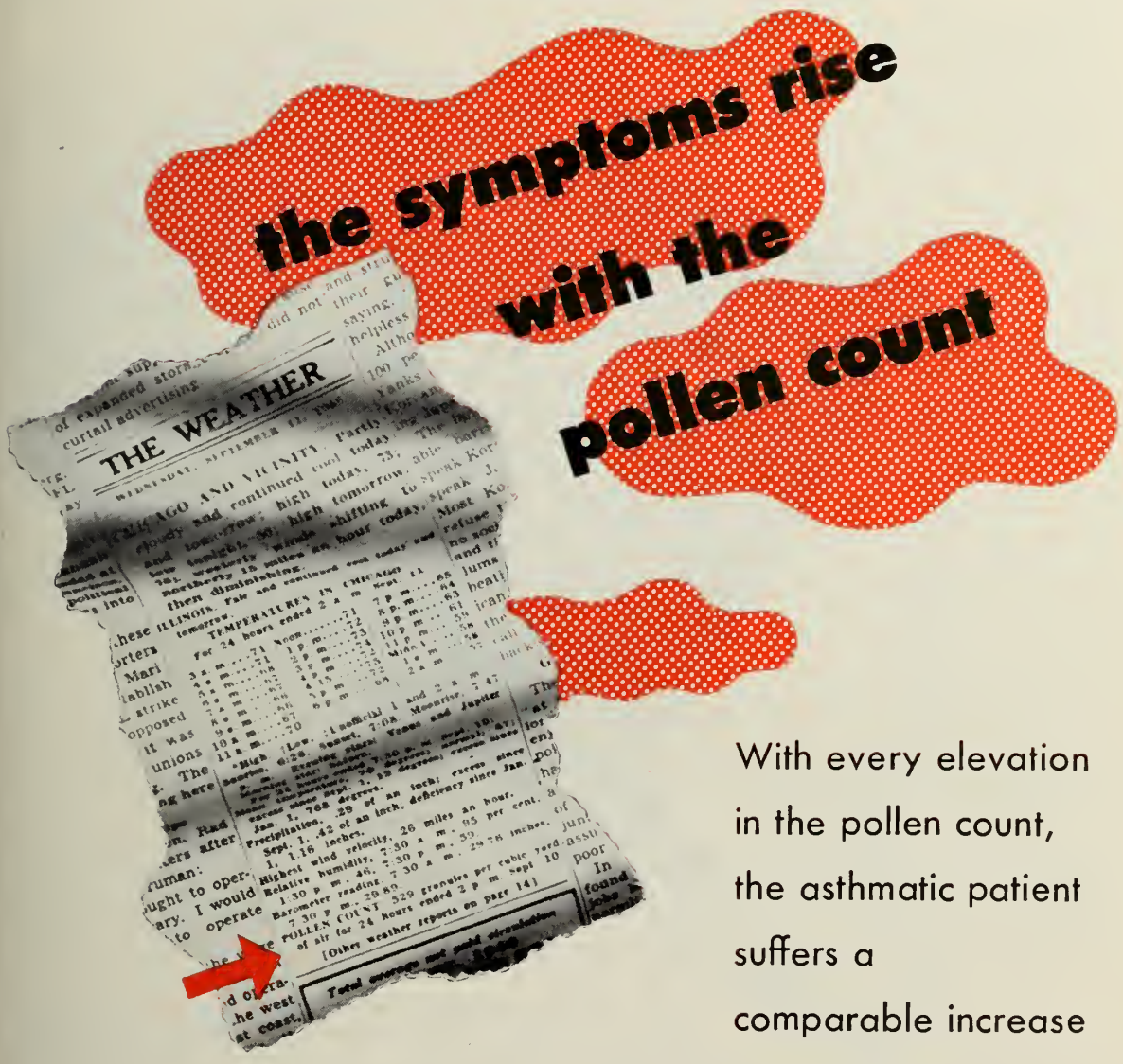
Despite these dire, gloomy forebodings, without any if's, and and's or but's, no one can deny that these two organizations have done an exceptionally competent job. We are advised by people who should know and whose experience in these matters has been gained elsewhere that our set-up in Kansas City is uniquely superlative. Comment has been made on the fairness with which patients, physicians and hospitals have been treated. Similarly, the cooperative spirit shown by these aforementioned groups toward our local prepayment plans has contributed considerably to the over-all success. Many communities have not enrolled 25 or 50 per cent of their physicians in this type of effort; many areas even do not have such a plan. We believe that the officers and the working personnel would be the first to affirm the statement that they have had exceptionally good cooperation from the physicians and hospitals in this area, and that such an attitude has made it possible for them to make our local plan one of the exemplary situations throughout the nation.

At the meeting Ira H. Lockwood, M.D., was elected President; Frank D. Dickson, M.D., Vice President; F. L. Feierabend, M.D., Secretary, and Morris S. Harliss, M.D., Treasurer. The organizations' announced projects for this year include a greater membership enrollment with ever-expanding benefits. This will certainly result in a better public recognition of their efforts and the constant effort to effect operating economies will permit a larger acceptance both with the physicians, the hospitals and the public.

We salute the founders of these two groups. Only in this way will organized medicine (and our friends who are genuinely interested in our future) be able to blunt the blows of those "bleeding hearts" who plan everything so well on paper and who would reduce all of the citizens in the United States to mere numbers on a file in Washington.

Congratulations, Blue Cross Hospital Service and Surgical-Medical Care Plan.

*Reprinted from the May 24 issue of the *Jackson County Medical Society Bulletin*, written by Vincent T. Williams. M.D.



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NEWS NOTES

Major General Raymond W. Bliss became Surgeon General of the Army, succeeding Major General Norman T. Kirk on June 1. Brig. General George E. Armstrong assumed the duties of Deputy Surgeon General.

The Veterans Administration Hospital at North Little Rock, Arkansas, has been approved for residency training in psychiatry by the American Medical Association and the American Board of Psychiatry and Neurology. The approval is for fifteen residents for the three-year training period.

E. C. Ernst, M.D., St. Louis, was elected president of the American College of Radiology at the recent meeting in Atlantic City.

Herbert L. Mantz, M.D., Kansas City, was elected President-Elect of the National Tuberculosis Association at the meeting in San Francisco, June 17 to 20.

Speakers who have appeared under the auspices of the Committee on Postgraduate Course recently follow:

J. A. del Regato, M.D., State Cancer Hospital, Columbia, spoke at a joint meeting of physicians from nine counties at Chillicothe on June 3 on "Cancer of the Uterus."

Robert W. Bartlett, M.D., St. Louis, spoke at the meeting in Chillicothe on June 3 on "Differential Diagnosis and Treatment of Pain in the Upper Right Abdomen."

Loren Ackerman, M.D., Columbia, spoke at a meeting of the Buchanan County Medical Society at St. Joseph on June 4.

David V. LeMone, M.D., Columbia, spoke at the meeting of the Buchanan County Medical Society on June 4.

Harold Zuber, M.D., Kansas City, spoke at a meeting of three county medical societies at Peculiar on June 12 on "The Management of Common Fractures Encountered in General Practice."

DEATHS

Drury, Robert L., M.D., St. Louis, a graduate of Washington University School of Medicine, 1934; member of the St. Louis Medical Society; aged 38; died March 20.

Nicks, Harry G., M.D., St. Louis, a graduate of Ensworth Medical College, St. Joseph, 1890; Honor Member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 86; died March 24.

Outland, John H., M.D., Kansas City, a graduate of the University of Pennsylvania School of Medicine, 1900; Honor Member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 76; died March 24.

Wood, Walter S., M.D., Edgerton, a graduate of the Ensworth Medical College, St. Joseph, 1896; Honor Member of the Platte County Medical Society; aged 76; died March 31.

Aufderheide, William D., M.D., St. Louis, a graduate of Marion-Sims College of Medicine, 1898; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 72; died April 12.

Bieri, Jacob A., Jr., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1930; member of the St. Louis Medical Society; aged 42; died April 12.

Clopton, Malvern B., M.D., St. Louis, a graduate of the University of Virginia Department of Medicine, 1897; Honor Member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 72; died April 21.

Dowell, George S., M.D., Braymer, a graduate of the University Medical College of Kansas City, 1900; member of the Caldwell-Livingston County Medical Society; Fellow of the American Medical Association; aged 71; died April 22.

Storrs, Henry J., M.D., St. Louis, a graduate of Johns Hopkins University School of Medicine, 1904; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 70; died April 23.

Carle, Horace W., M.D., St. Joseph, a graduate of Bennett College of Medicine, 1914; member of the Buchanan County Medical Society; Fellow of the American Medical Association; aged 58; died April 27.

Brandt, Benjamin F., M.D., Cappeln, a graduate of Washington University School of Medicine, 1908; member of the St. Charles County Medical Society; Fellow of the American Medical Association; aged 63; died April 29.

Gray, John M., M.D., Joplin, a graduate of the St. Louis College of Physicians and Surgeons, 1899; member of the Jasper County Medical Society; aged 73; died May 2.

Tuholske, Lister H., M.D., St. Louis, a graduate of Washington University School of Medicine, 1909; member of the St. Louis Medical Society; aged 60; died May 2.

Smith, Jacob D., M.D., Shelbina, a graduate of Rush Medical College, 1870; Honor Member of the Shelby County Medical Society; retired; aged 98; died May 8.

Luton, Lionel Sinclair, M.D., St. Louis, a graduate of Rush Medical College, 1901; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 72; died May 16.

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for July and August, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

July 2: Miscellaneous.
July 4: Holiday.
July 9: Skin.
July 11: Breast.
July 16: Gastrointestinal.
July 18: Cervix.
July 23: Skin.
July 25: Head and Neck.
July 30: Bone and Lymphomas.
August 1: Gynecologic and Genitourinary.
August 6: Miscellaneous.
August 8: Breast.
August 13: Skin.
August 15: Cervix.
August 20: Gastrointestinal.

August 22: Head and Neck.
August 27: Skin.
August 29: Bone and Lymphomas.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

H. E. PETERSEN, ST. JOSEPH, COUNCILOR

Seven County Medical Meeting

The fifth joint dinner meeting of the Caldwell-Livingston, Grundy-Daviess, Carroll, Harrison, Linn, Mercer and Ray County Medical Societies was held at the Strand Hotel, Chillicothe, on June 3. The Mercer County Medical Society served as host at the meeting which was attended by thirty physicians.

J. A. del Regato, M.D., Columbia, spoke on "Cancer of the Uterus."

Robert W. Bartlett, M.D., St. Louis, discussed "Differential Diagnosis and Treatment of Pain in the Upper Right Abdomen."

The next meeting of the group is scheduled for September at Chillicothe under the sponsorship of the Harrison County Society.

J. M. Perry, M.D., Secretary,
Mercer County Medical Society.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on May 14 at 8:30 p. m. at the Health Center, St. Louis County Hospital, Clayton.

Upon motion of Eugene Brown, M.D., the by-laws to the amendments published in the last three issues of *The Bulletin* were accepted.

Upon motion, the Society went on record as favoring the proposed World's Fair in St. Louis.

John F. Patton, M.D., St. Louis, spoke on "Mangement of Urinary Tract Infections."

Martyn Schattyn, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

Barry-Lawrence-Stone-Taney County Medical Society

The Barry-Lawrence-Stone and the Taney County Medical Society met June 10 at Crane with Drs. H. L. Kerr and Fred Wommack as hosts at a 7:00 p. m. chicken and strawberry dinner. The following were present: J. M. Threadgill, M.D., Forsyth; Fred R. Farthing, M.D., and Gene W. Farthing, M.D., Springfield; Mary N. Newman, M.D., and George Newman, M.D., Cassville; L. S. Shumate, M.D., and W. P. Cottrell, M.D., Reeds Springs; R. R. Farthing, M.D., Ozark; C. A. Spears, M.D., Billings; Frank T. Kerr, and F. J. Moenninghoff, M.D., Monett; H. T. Evans, M.D., Branson; W. Merriam, M.D., Rockaway Beach; Roy Dickman, M.D., and Kenneth Glover, M.D., Mount Vernon; H. L. Kerr, M.D., and Fred Wommack, M.D., Crane.

The scientific portion of the meeting comprised the reporting by each member present an interesting medical or surgical case he had cared for.

It was decided to have the next meeting on the second Tuesday in September.

A request was made by Dr. Spears, Secretary of the Christian County Medical Society, that they be permitted to hyphenate with the Barry-Lawrence-Stone-Taney County Medical Society. Upon motion it was decided that the Christian County Medical Society hyphenate.

Appreciation was expressed to Dr. Kerr for the splendid dinner and arranging the meeting.

Kenneth Glover, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met at the El Patio Hotel, Cabool, for a dinner meeting on May 16, with the following present: J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., H. G. Frame, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; R. T. Harsh, M.D., Houston; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains; Ronald F. Elkins, M.D., and A. Denton Vail, M.D., Springfield.

Dr. Vail spoke on "Newer Concepts in the Treatment of Hyperthyroidism" dwelling especially on thiouracil and other drugs and showing the benefits and dangers in their use.

Dr. Elkins discussed "Diagnosis and Treatment of Pilonidal Cysts" and showed slides illustrating the operation and results.

The Society adjourned to meet in Mountain Grove on June 20.

A. C. Ames, M.D., Secretary.

Ninth Councilor District

A meeting of physicians of the Ninth Councilor District and adjoining counties was held in the afternoon and evening of May 23 at the Edwin Long Hotel, Rolla. Seventy-five physicians and guests were present.

The afternoon session consisted of three well presented, practical scientific discussions: Leslie D. Carsidy, M.D., St. Louis, spoke on "Chronic Gallbladder as a Medical Problem"; U. J. Busiek, M.D., Springfield, discussed "Summer Problems in Pediatrics"; William J. Stewart, M.D., Columbia, spoke on "The Management of Fractures Encountered in General Practice."

Following a pleasant social hour the evening program was initiated by an excellent dinner.

At the conclusion of the dinner a round table discussion on "Your State Association on the Job" with Morris B. Simpson, M.D., Kansas City, President, as moderator, was presented. Participants in the round table discussion were William J. Shaw, M.D., Fayette; member of the Committee on Veterans Care; W. S. Sewell, M.D., Springfield, President of the Community Health League; T. R. O'Brien, St. Louis, Executive Secretary, and Ray McIntyre, St. Louis, Field Secretary.

E. C. Bohrer, M.D., Councilor.

The American Medical Association has published a list of acceptable medical schools annually since 1910.

More than 250 delegates, representing 40 medical societies and 28 colleges, founded the American Medical Association in the hall of the Academy of Natural Sciences in Philadelphia on May 5, 1847.

The Bureau of Medical Economic Research reports that approximately three-fourths of the 200,000 physicians in the United States are engaged in active practice.

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WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

WOMAN'S AUXILIARY

Missouri was well represented at the 25th anniversary meeting of the Woman's Auxiliary to the American Medical Association held in Atlantic City, June 9 to 12. Thirty delegates, alternates and members of the Missouri Auxiliary were among the 2,200 physicians' wives registered at Haddon Hall where the Auxiliary meetings were held.

Mrs. Jesse D. Hamer, Phoenix, Arizona, presided at all business sessions. Mrs. Eustace Allen of Atlanta, Georgia, was installed as President at the close of the convention on Wednesday afternoon.

Miss Lucile Petry, Division of Nursing, U. S. Public Health Service, Washington, D. C., was guest speaker at a luncheon on Tuesday. Miss Petry told of the critical nursing situation and urged the Auxiliary members to take a leading part in an effort to bring an end to the shortage of nurses.

Dr. Harrison Shoulders, Nashville, Tennessee, retiring President of the American Medical Association; Dr. Edward Bortz, Philadelphia, newly installed President; Dr. Morris Fishbein, Editor, and Dr. W. W. Bauer, Director of the Bureau of Health Education, addressed the Auxiliary members at a luncheon on Wednesday. Each speaker stressed the fact that the 36,000 physicians' wives are the greatest public relations agents of the medical profession. They urged each one to become well informed on the prepayment plans for voluntary health insurance and to help instruct the public on the advantages of the voluntary plans over those of compulsory health insurance. Their challenge to the physicians' wives was the problem of preserving the democratic way of life in the practice of medicine.

The following officers of the Auxiliary were elected for 1947 and 1948: President-elect, Mrs. Luter H. Kice, New York; first vice president, Mrs. David Allman, New Jersey; second vice president, Mrs. Leo J. Schaeffer, Kansas; third vice president, Mrs. E. Arthur Underwood, Washington; fourth vice president, Mrs. W. W. Potter, Tennessee; constitutional secretary, Mrs. George Turner, Texas; treasurer, Mrs. A. A. Herold, Louisiana; directors for two years, Mrs. I. J. Breidenstein, Montana, Mrs. E. G. McClure, West Virginia, Mrs. David S. Long, Missouri.

Mrs. R. C. Haynes, Chairman,
Press and Publicity.

HYGEIA CONTEST

Hygeia is offering $500.00 in thirty-seven prizes open to physicians, interns and medical students. Letters giving suggestions for improving *Hygeia* should be of one hundred words or less and should be mailed before August 1, 1947, to Editor, *Hygeia* Magazine, 535 North Dearborn Street, Chicago 10, Ill.

Mrs. Harry Gilkey.

A permanent record of all licenses issued by state medical examining boards is kept by the American Medical Association.

One of the objectives of the Council on Foods and Nutrition of the American Medical Association is to promote improvements in the quality of foods through the application of scientific knowledge to the problems of the food industry.

MISSOURI STATE MEDICAL ASSOCIATION

Eighty-Ninth Annual Session

Kansas City

March 30, 31, April 1, 2, 1947

MINUTES OF THE HOUSE OF DELEGATES

Little Theater, Municipal Auditorium

Monday Session

The first meeting of the House of Delegates of the Eighty-Ninth Annual Session of the Missouri State Medical Association was called to order at 9:00 a. m. in the Little Theater, Municipal Auditorium, Kansas City, with Ralph E. Duncan, M.D., Kansas City, Speaker, presiding.

A quorum was shown present upon roll call.

Officers, Councilors and Delegates who were present during the Annual Session follow:

Officers

President	Howard B. Goodrich, Hannibal
President-Elect	Morris B. Simpson, Kansas City
Secretary	W. A. Bloom, Fayette
Treasurer	C. E. Hyndman, St. Louis
Editor	G. V. Stryker, St. Louis

Councilors

1st District	H. E. Petersen, St. Joseph
2nd District	W. F. Francka, Hannibal
3rd District	J. W. Thompson, St. Louis
4th District	Otto W. Koch, Clayton
5th District	J. F. Jolley, Mexico
6th District	R. W. Kennedy, Marshall
7th District	C. Edgar Virden, Kansas City
8th District	Wallis Smith, Springfield
9th District	E. C. Bohrer, West Plains
10th District	Paul Baldwin, Kennett

Delegates

Audrain	Fred Griffin, Mexico
Barry-Lawrence-Stone	Kenneth Glover, Mount Vernon
Barry-Lawrence-Stone	H. L. Kerr, Crane
Bates	A. L. Hansen, Appleton City
Boone	A. R. McComas, Sturgeon
Buchanan	L. Paul Forgrave, St. Joseph
Buchanan	A. B. McGlothlan, St. Joseph
Buchanan	Cabray Wortley, St. Joseph
Butler	C. A. Post, Poplar Bluff
Caldwell-Livingston	G. S. Dowell, Braymer
Callaway	E. R. Gish, Fulton
Cape Girardeau	Frank W. Hall, Cape Girardeau
Carroll	Carl Reed, Carrollton
Carter-Shannon	T. W. Cotton, Van Buren
Chariton-Macon-Monroe-Randolph	H. E. Erni, Macon
Chariton-Macon-Monroe-Randolph	J. W. Fleming, Jr., Moberly
Clay	Glenn Hendren, Liberty
Cole	H. B. Stauffer, Jefferson City
Cooper	G. W. Winn, Boonville
Dallas-Hickory-Polk	G. C. Plummer, Buffalo
Dunklin	S. E. Mitchell, Malden
Greene	W. S. Sewell, Springfield
Greene	F. T. H'Doubler, Springfield
Grundy-Daviess	C. H. Cullers, Trenton
Grundy-Daviess	Edward Nixon, Gallatin
Harrison	W. A. Broyles, Bethany
Henry	G. S. Walker, Clinton
Jackson	A. N. Altringer, Kansas City
Jackson	A. E. Eubank, Kansas City
Jackson	O. S. Gilliland, Kansas City
Jackson	Ralph E. Duncan, Kansas City

Jackson..... J. H. Jennett, Kansas City
Jackson..... Fred B. Kyger, Kansas City
Jackson..... F. A. Carmichael, Jr., Kansas City
Jackson..... Hugh Dwyer, Kansas City
Jackson..... B. Landis Elliott, Kansas City
Jackson..... A. N. Lemoine, Kansas City
Jackson..... H. L. Mantz, Kansas City
Jackson..... V. T. Williams, Kansas City
Jackson..... A. B. Sinclair, Jr., Kansas City
Jasper..... B. E. DeTar, Joplin
Jasper..... R. M. James, Joplin
Jefferson..... George Hopson, DeSoto
Johnson..... R. L. Cooper, Warrensburg
Lafayette..... C. T. Ryland, Lexington
Lewis-Clark-Scotland... J. R. Bridges, Kahoka
Lewis-Clark-Scotland... P. W. Jennings, Canton
Lincoln..... J. C. Creech, Troy
Marion-Ralls..... B. L. Murphy, Hannibal
Mercer..... A. S. Bristow, Princeton
Miller..... W. L. Allee, Eldon
Moniteau..... J. P. Burke, Jr., California
Morgan..... J. L. Washburn, Versailles
Nodaway-Atchison-Gentry-Worth..... Charles D. Humberd, Barnard
Nodaway-Atchison-Gentry-Worth..... Emmett B. Settle, Rock Port
Pemiscot..... W. R. Limbaugh, Hayti
Perry..... J. J. Bredall, Perryville
Phelps-Crawford-Dent-Pulaski..... M. K. Underwood, Rolla
Phelps-Crawford-Dent-Pulaski..... William R. Lytle, Waynesville
Pike..... Charles P. Lewellen, Louisiana
St. Charles..... Vincent A. Schneider, St. Charles
St. Francois-Iron-Madison-Washington-Reynolds..... H. M. Roebber, Bonne Terre
St. Francois-Iron-Madison-Washington-Reynolds..... R. E. Harland, Ironton
St. Louis..... R. B. Denny, Creve Coeur
St. Louis..... Roy A. Walther, Sr., Overland
St. Louis..... Oscar P. Hampton, Jr., St. Louis
St. Louis..... Arthur W. Westrup, St. Louis
St. Louis..... Richard A. Sutter, St. Louis
St. Louis City..... Victor E. Scherman, St. Louis
St. Louis City..... E. Lee Dorsett, St. Louis
St. Louis City..... Robert E. Schlueter, St. Louis
St. Louis City..... Jerome I. Simon, St. Louis
St. Louis City..... Leo J. Hartnett, St. Louis
St. Louis City..... Curtis H. Lohr, St. Louis
St. Louis City..... Oliver Abel, Jr., St. Louis
St. Louis City..... E. C. Ernst, St. Louis
St. Louis City..... Henry P. Thym, St. Louis
St. Louis City..... Arthur W. Neilson, St. Louis
St. Louis City..... Armand D. Fries, St. Louis
St. Louis City..... Charles L. Klenk, St. Louis
St. Louis City..... William B. Kountz, St. Louis
St. Louis City..... A. N. Arneson, St. Louis
St. Louis City..... F. G. Pernoud, St. Louis
St. Louis City..... P. C. Schnoebelen, St. Louis
St. Louis City..... Maxwell Fineberg, St. Louis
St. Louis City..... Edward P. Buddy, St. Louis
St. Louis City..... Carl F. Vohs, St. Louis
Saline..... George A. Aiken, Marshall
Scott..... W. O. Finney, Chaffee
South Central—
Howell..... C. F. Callihan, Willow Springs
Oregon..... C. W. Cooper, Thayer
Texas..... Garrett S. Hogg, Jr., Cabool
Wright..... R. A. Ryan, Mountain Grove
Sullivan..... J. S. Montgomery, Milan
Vernon-Cedar..... C. Braxton Davis, Nevada
Vernon-Cedar..... William B. Richter, Stockton
Webster..... E. G. Beers, Seymour

The reading of the minutes of the previous meeting was dispensed with and they were adopted as printed in THE JOURNAL.

The Speaker appointed the following Reference Committees:

Reference Committee on Amendments to the Constitution and By-Laws

B. Landis Elliott, Kansas City, Chairman.
Oliver Abel, Jr., St. Louis.
J. L. Washburn, Versailles.

Reference Committee on Resolutions

Frank W. Hall, Cape Girardeau, Chairman.
W. S. Sewell, Springfield.
Cabray Wortley, St. Joseph.

Reference Committee on Miscellaneous Affairs

A. R. McComas, Sturgeon, Chairman.
W. B. Kountz, St. Louis.
V. T. Williams, Kansas City.

Reference Committee on Medical Education and Public Welfare

Richard A. Sutter, St. Louis, Chairman.
Harry E. Erni, Macon.
Burleigh E. DeTar, Joplin.

The President, Howard B. Goodrich, M.D., Hannibal, read his message and recommendations as follows:

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

The last year has been a very active one for the Missouri State Medical Association—its officers, its committees and its office personnel. Much has been accomplished but many of our old problems are only partly solved and, as is to be expected, new problems keep arising.

With ten years of thoughtful service on the Council behind me I have developed some rather positive opinions on many of the matters which concern us all as members of the medical profession. I have several recommendations which I wish to bring to the House of Delegates for consideration. I believe that none of them are original with me and that most of them have been thoroughly discussed and considered by many of you. The Council has considered most of these matters and has taken action on many of them.

1. I wish first to speak on Medical Education. It is an understatement to say that from a scientific standpoint medical education in this country is excellent and is improving constantly. We justifiably are proud of our fine medical schools and teaching hospitals. Nevertheless, I feel that certain needs of the medical students are not entirely met.

a. I wish to recommend that students be given definite information and instruction on the economic problems of medical care, its cost and the problems of its distribution, on prepayment hospital and medical care plans, and on the philosophy and the basic factors which have brought American medicine to its present high level of achievement.

b. I also wish to recommend that medical students be made more aware of their responsibilities to the medical profession and also of their responsibilities to their community as future prominent and respected citizens. Many a physician becomes so engrossed in a very busy practice that the community loses the benefit of his advice on and his participation in civic matters. Of course, many medical men do put in long hours at great personal sacrifice trying to help solve community problems. In the same way every local medical organ-

ization needs the active cooperation of every medical man in that community. I believe that a definite lecture course to show students their responsibilities to medical and civic organizations would be of great value.

c. I also recommend that every medical graduate have at least one year's rotating internship in an approved hospital before advancing into specialized fields. It is my opinion that every medical man needs this background of diversified experience and training before concentrating his efforts in his chosen field. I know of many medical students who have desired rotating internships but had to be content with specialized internships because so few rotating internships were available.

2. I wish next to speak on the education of the public in matters of health. It is both our duty and in our province to give the people of this country all the education and information on health subjects that we can. The medical profession is the authoritative source of such information. We should be the spokesman for its dissemination. This education of the public in matters of health is the only effective foundation on which to build improved public relations.

a. I recommend that we constantly try to improve the hygiene and other health courses in grade schools, high schools and colleges.

b. I recommend that we make greater efforts to inform the public of the value of medical care, what medical care can achieve, when they should seek it and how they may obtain it.

c. I recommend that we develop a definite organization to show communities which need but do not have accredited hospital facilities the need and value of such hospitals in their communities and to follow that up with our support to obtain those hospitals.

d. I recommend that medical men speak to more lay meetings. There should be more public forums in which medical men may lead the discussions on the scientific accomplishments and economic problems of medicine.

3. Nursing education is in a critical position. There is an extreme shortage of graduate and undergraduate nurses. This is bound to reflect on the quality of hospital care. Nursing and hospital organizations are at present in a vigorous campaign to recruit a greatly increased number of qualified student nurses. We should help this recruiting program in every way possible. Many hospitals hesitate to plan critically needed additions because of the fear that they cannot staff them adequately. I recommend that we cooperate actively with both nursing and hospital organizations to help solve this shortage. It is possible that this shortage may be partly due to the high educational standard of training schools for nurses.

4. The activities of the United States Public Health Service and our Missouri Division of Health have expanded greatly in the last generation and will probably continue to do so in the coming years. I am happy to state that your officers are working in close harmony with the Director of the Division of Health. However, many of us as individuals are not thoroughly acquainted with the various phases of the program of the Division of Health. Without complete understanding of its program we cannot cooperate fully with the personnel of the Division. I recommend that we try to keep our members more fully informed on the problems, duties and activities of the Division of Health.

5. We are inaugurating a veteran's program at the request of the veteran's administration. This program involves both the examination of veterans for disabilities and the treatment of those disabilities. This program needs the approval of every medical practitioner in Missouri and the active cooperation of every medical man who can fit this program into his practice. I recommend that this House of Delegates gives a strong endorsement to this program for the veterans.

6. The Blue Cross plans of St. Louis and Kansas City have both grown admirably during the ten years since their establishment. Surgical Care of Kansas City and Missouri Medical Service, though much younger than the Blue Cross Plans, are showing rapid growth. Many problems are being encountered which are the natural growing pains of these organizations. There are other problems arising which are due to the fact that the two Blue Cross plans do not have identical premiums and benefits, and because the two medical service plans do not have identical premiums and benefits. Some of these problems will become more and more serious unless identical contracts can be offered by these services. The unification of these contracts is I feel, at the moment, one of our most urgent problems. I recommend that we cooperate actively with these four organizations to help them unify their contracts as speedily as possible.

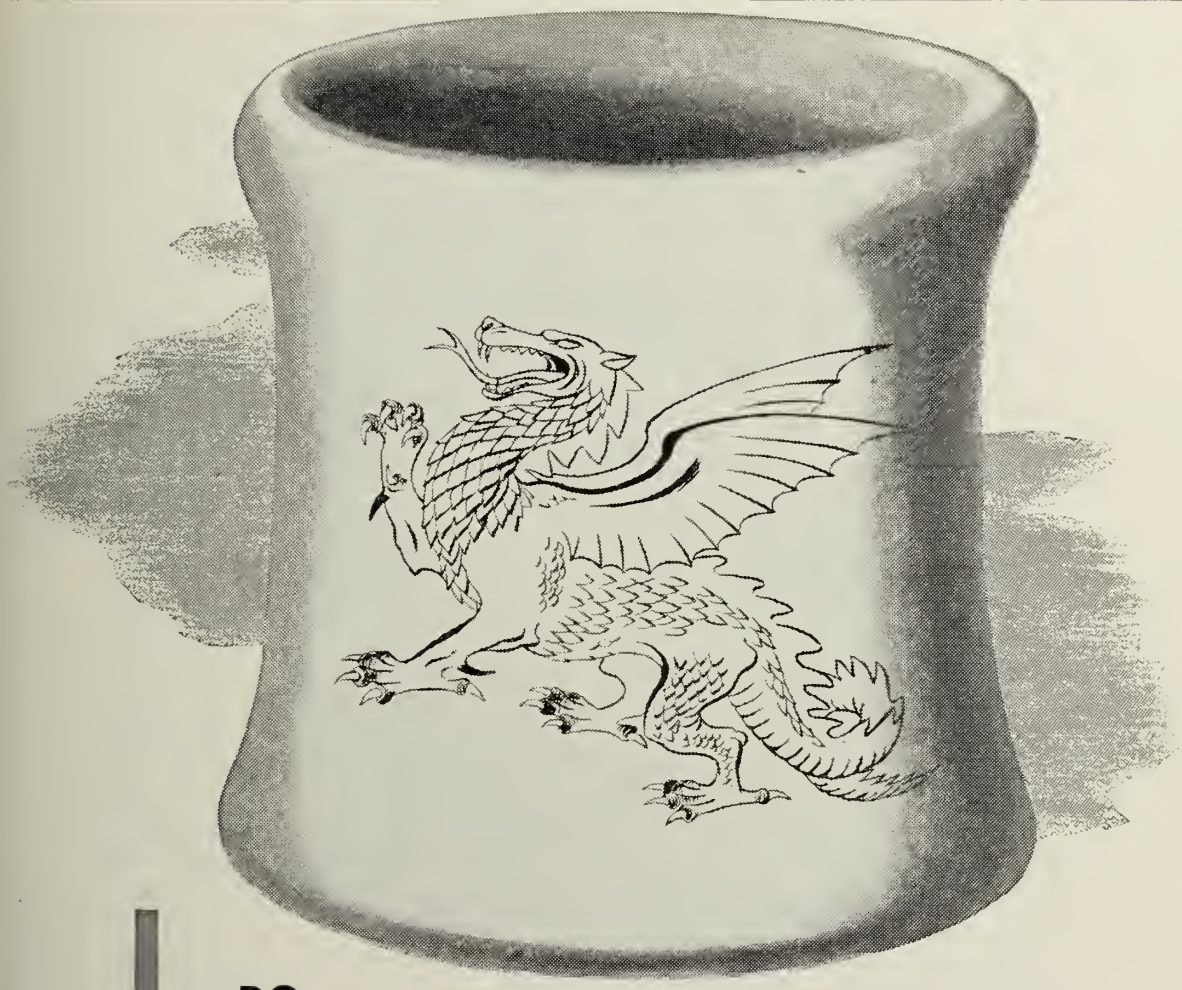
7. Solving the rural health problem of the serious shortage of both medical men and hospital facilities has been one of our major problems for many years and will continue with us in the future. We have supported hospital legislation which will help develop or enlarge hospital facilities in areas in which they are needed. We must support this program vigorously and give the people in the communities concerned information on the benefits of accredited hospitals so that they will vote the necessary bond issues for their construction and the necessary taxes for their maintenance. We know that hospital facilities will bring young medical men to these areas. About 150 young medical men have started practice in rural areas during the last year. With few exceptions they have settled in or near communities that either had or were obtaining hospital facilities. I recommend that we support this hospital construction program to the limit of our ability.

8. I feel that Missouri should offer a four year medical school course to its qualified sons. It is my considered opinion that it would develop an increased number of medical graduates who would wish to practice in our towns and smaller cities. At this time it does not seem possible to develop a four year medical school for the University of Missouri. Until that time may arrive I recommend that we seek the cooperation of the Board of Curators for the introduction of legislation that will empower the Board of Curators of the University of Missouri to pay the tuition for the third and fourth medical school years in qualified private medical schools for those University of Missouri medical students who satisfactorily complete their first two years of medicine at Missouri.

9. When many medical men are ready to start in private practice they are seriously handicapped by insufficient funds to equip their offices and to carry them through the lean early months of practice. I recommend that a committee be appointed to study the possibility of a loan fund set up by the Missouri State Medical Association to be used to help needy and qualified medical men starting in private practice.

Before closing this report I wish to speak of the fine work of all of our office personnel. Tom O'Brien, our Executive Secretary, has been doing a splendid job correlating the many activities of our Association, working with our committees and assisting our officers. In my opinion he has proved himself invaluable to this organization.

Our Field Secretary, Ray McIntyre, is doing excellent work all over Missouri, stimulating the interest of individual physicians, activating many small county societies and arranging well attended meetings with fine programs in many rural sections of the state. This new office of Field Secretary, which was established a year ago, is proving extremely valuable and I feel sure that it will continue to grow in importance. We are certainly fortunate to have Ray McIntyre back in our organization after he found it necessary to leave us to accept a commission in the Navy.



DO YOU KNOW WHAT THESE SYMBOLS STAND FOR?

In medieval times, the dragon was the symbol of the chemist and apothecary. Ancient alchemists were said to use dragon's blood in their potions, and the dragon came to mean certain chemical actions. An apothecary advertised his wares to the world by painting a dragon on a drug pot, and hanging it over his door.

Today it is the familiar Rexall sign which assures you of superior and dependable pharmacal service. Displayed over more than 10,000 independent drug stores throughout the country, the Rexall symbol on drugs means pure, potent and uniform drugs, laboratory tested under the rigid Rexall system of controls. It means unexcelled pharmacal skill in compounding them.

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In the field of allergy, cosmetics are literally and figuratively not to be sneezed at, because they may be a causative or contributing agent in allergic cases. That is why when there is a history of allergy we suggest that patch tests be made with those of our products the subject is using or contemplates using. If they test positive, further testing with their constituents is indicated to determine the offending agents. These found, we frequently can modify our formulas to suit the subject's requirements. The patch test is generally considered best for testing cosmetics because it most closely approximates the conditions under which they are normally used.

While our products are free from so-called common cosmetics allergens, such as orris root and rice starch, we feel it should be made clear that any of their normally innocuous ingredients might be allergenic to the allergic individual. It is our practice to write our patrons a letter to this effect when a history of allergy is involved.

It is our experience that many persons with allergic constitutions cannot tolerate scented cosmetics; therefore we routinely recommend and select unscented products when there is a history or suspicion of allergy. This practice is not to imply or suggest that the subject is sensitized to perfume; it is solely to safeguard against the possibility.

In specific cases of allergy or suspected allergy, when the subject is using or contemplates using our products, we are pleased on his request to send her doctor the involved raw materials for patch testing, also such information concerning our products as may have a bearing on the case.

Since in the light of present knowledge it is not possible, save in specific cases, to make non-allergenic cosmetics, we believe the cosmetic requirements of the allergic individual should be considerd by her doctor in the light of the formulas and general characteristics of the products she is using or contemplates using.

Luzier's Fine Cosmetics & Perfumes are selected to suit your practical cosmetics requirements and aesthetic preferences. They are made available to you by Cosmetics Consultants who assist you with the selection of suitable Luzier products and show you how to apply them to achieve the most becoming cosmetic effect.

LUZIER'S, INC.,

Makers of Fine Cosmetics & Perfumes

KANSAS CITY, MISSOURI

As we all know Miss Helen Penn has been a mainstay in our office for many, many years and she is continuing her superior and efficient work for which she can always be depended on. These three faithful workers give us a smoothly working team to carry out our wishes and the needs in our State Medical office.

I have enjoyed my associations on the Council during the last ten years more than anyone can know. The Council has been a fine, intelligent group working for the best interests of the medical profession and for the best interests of the people of Missouri. During these ten years we have been very fortunate in having such a succession of capable men as chairmen of the Council. First, Pinson Neal of Columbia, next Curt Lohr of St. Louis, then Bill Bloom of Fayette and now our present chairman, Bill Thompson of St. Louis. All of these men have handled the affairs of the Council with efficiency and energy and have given a self sacrificing amount of time to this responsible position. Progress under them has been continuous. It has been a real honor to work with this group during these years. It has been a particular honor to serve as your president these last twelve months. I appreciate it deeply and thank you all.

The President's Message was received and referred to the Reference Committee on Medical Education and Public Welfare.

The report of the Executive Secretary follows:

REPORT OF THE EXECUTIVE SECRETARY

Your Executive Secretary wishes first of all to pay tribute to the loyalty and devotion of the entire staff, and especially to Miss Helen Penn and Mr. Ray McIntyre. Their cooperation and interest in the Association and its problems indeed merit a vote of thanks from all the members and especially from your Executive Secretary.

A most excellent program has been arranged by the Committee on Scientific Work which we believe will be of great interest to all members. Also some excellent scientific exhibits have been planned which will add to the value of the Session. Seventy-five technical exhibits will be shown. These should be valuable in giving physicians an opportunity to learn of the newer types of apparatus and drugs now in use. These technical exhibits, to a large extent, make it possible to have the type of scientific programs that you most desire since the revenue derived from them goes a long way toward carrying the entire expense of the meeting. It is the hope of your officers and the members of the Committee on Scientific Work that you will make a special effort to view the technical exhibits.

The paper shortage which persisted during the war period continued through the year 1946. As a result, THE JOURNAL has been smaller than your officers expected. It is hoped that the year 1947 will bring an end to the shortages and THE JOURNAL can again be brought to the size of former years.

The Bureau of Information which was established early in 1946 proved to be most helpful to those physicians who wished information about places to practice in rural areas of Missouri. This Bureau under the direction of the Committee on Rural Health and supervised by the Field Secretary, Ray McIntyre, received more than 200 requests from physicians for information about communities or from communities which hoped to secure a physician.

Your Field Secretary has visited almost every section of the state during 1946. This work which was approved by the House of Delegates at the 1946 Session has been most valuable. He has assisted many of the counties in arranging their programs and stands ready to do so in 1947. At the beginning of 1946 there were seventy-six component county medical societies. Of these, twenty-four had six or less members. It was virtually impossible for these twenty-four societies to hold regular meetings and it was felt that every effort should be made to hyphenate them with other nearby county societies. A direct result of this field effort has been the hyphenation of the following county societies: Phelps, Crawford, Dent, Pulaski; Chariton, Macon, Monroe, Randolph; Barton, Dade.

In several instances it has not been feasible to hyphenate societies; however, joint meetings of several societies have been arranged. Three meetings of this type have been held in Chillicothe with doctors from eight nearby counties invited. Each of the meetings was attended by more than thirty physicians. Another meeting took place in Nevada with members of eleven counties invited and forty-two physicians attended. Another meeting was held in Wentzville with three counties participating and thirty-two physicians attended. A meeting was held in Marshall with members of three societies invited with twenty-five attending.

Councilor Districts Nos. 1, 2, 6, 8 and 11 have held their meetings and all were well attended. The other Councilor Districts will have their meetings probably before the Annual Session or shortly thereafter.

Less than three years ago, according to our records, there were 1,133 physicians in Missouri, exclusive of St. Louis, St. Louis County and Jackson County. On December 31, 1946, there were 1,315 practicing physicians in the same area, a gain of 182. These totals do not include full time public health officers and those serving full time in state and federal institutions.

In 1946 six counties voted bonds to build hospitals. These counties were Barton, Dunklin, Lincoln, Pemiscot, Perry and Phelps. Many communities have purchased private hospitals or arranged to raise funds for future construction. Aurora voted $30,000 in bonds to purchase and open a private hospital for community use. Lockwood issued stock shares for the same purpose. Harrisonville voted retiring notes for purchase of a private hospital, recently opened to the community.

Lexington has voted a $175,000 bond issue to help build a community hospital. Additional money will be raised by donations. A community hospital, operated by Catholic sisters, was opened this fall in Marceline.

In Sikeston, the Delta Community Hospital is now under construction, financed by a contribution from the Commonwealth Fund and money raised from the local area. In addition to these communities, many others plan similar efforts for hospital construction soon.

Recent legislation passed by the State General Assembly provides for a survey of all public and private hospitals by the Division of Health of the State Department of Public Health and Welfare. An advisory council of seven persons was appointed by Governor Donnelly on December 10 to assist the Division of Health in the survey work and in formulating the official state plan for construction of hospital facilities. Mr. McIntyre has been appointed as a consultant in this work.

The Committee on Nominations which is appointed by the President from the House of Delegates must submit nominations for the following offices:

Three Vice Presidents to fill the vacancies created by the expirations of the terms of Drs. Daniel L. Sexton, St. Louis; Winfred L. Post, Joplin, and G. T. Bloomer, St. Joseph. Two Delegates and corresponding alternates to the American Medical Association to fill the vacancies created by the expiration of the terms of Dr. James R. McVay, Kansas City, Alternate, Dr. H. L. Kerr, Crane; and Dr. Robert Schlueter, St. Louis, Alternate, Dr. H. E. Petersen, St. Joseph.

The terms (two years) of the Councilors of the even numbered Districts expire this year: Dr. W. F. Francka, Hannibal, Second District; Dr. Otto W. Koch, Clayton, Fourth District; Dr. R. W. Kennedy, Marshall, Sixth District; Dr. Wallis Smith, Springfield, Eighth District;

Paul Baldwin, Kennett, Tenth District. Delegates from these districts shall meet on the morning of the third day and elect the Councilor for their District. The election must be certified to the House of Delegates on a prescribed form which will be furnished.

The following Honor Members are eligible for Affiliate Fellowship in the American Medical Association: Drs. C. T. Reid, Joplin; James Stewart, Jefferson City; J. W. Grauerholz and John O. Skinner, Kansas City; Frank J. V. Krebs, Clayton; J. W. McDonald, Edwin J. Schisler, Frederick E. Woodruff and John Zahorsky, St. Louis; Charles W. Bassett, Madison, New York; Malvern B. Clopton, Cape Cod, Massachusetts.

The Session will convene for three days beginning Monday morning and closing Wednesday evening. A dinner for Secretaries and Presidents will be held Sunday evening, March 30, prior to the opening session of the House of Delegates on Monday morning, March 31, at 9:30 a. m. A recessed session of the House of Delegates will be held Monday afternoon at 4:00 p. m. and the final session of the House will convene at 2:30 p. m. Wednesday, April 2. The Annual Banquet in Honor of Past Presidents will be held Monday evening, March 31, at 7:00 p. m. at the President Hotel.

Status of Membership

Number of members, January 1, 1946		3,251
New members	287	
Reinstated	28	
Total		3,566
Dropped	45	
Deceased	75	
Transferred	56	
Total January 1, 1947		3,390

Of this total 300 are Honor Members.

T. R. O'Brien, Executive Secretary.

Upon motion, duly seconded, the report was accepted.

The report of the Treasurer, C. E. Hyndman, M.D., St. Louis, follows:

REPORT OF THE TREASURER

C. E. Hyndman, M.D., St. Louis: Because of the Annual Session being at an early date, it was impossible to obtain the financial statement in time to publish it in a preceding issue of The Journal. Therefore reprints have been placed in your hands and the statement will appear in the April issue of The Journal.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Scientific Work, Rex L. Diveley, M.D., Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The report of the Committee on Scientific Work is embodied in the program which appeared in the March issue of The Journal. The Committee feels that a practical and valuable program has been arranged and it is hoped that members will gain from the presentations at the sessions.

Rex L. Diveley, Chairman,
Franklin E. Walton,
Ralph L. Thompson,
Raymond O. Muether,
Vincent T. Williams.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Postgraduate Course, R. O. Muether, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON POSTGRADUATE COURSE

The Committee on Postgraduate Course met on July 7, 1946, for the purpose of outlining its work prior to the fall of the year when component societies become more active. It was felt that after the last few years when it was impossible for component societies to meet as regularly as during normal times and, also, impossible to obtain speakers always when desired, that the work of the Committee should become more intensive. The following objectives for the Committee were outlined at this meeting:

1. Cooperate with other committees in obtaining the best speakers available for specific subjects.
2. Encourage component societies to hold scientific meetings and the Committee furnish speakers for these meetings.
3. Assist Councilors in planning Councilor District meetings by furnishing speakers for the meetings.
4. Assist the Committee on Scientific Work in planning the program for the Annual Session.
5. Study the possibilities of holding clinic meetings in larger centers and also interesting the medical schools and state hospitals in sponsoring clinic meetings.
6. Study the possibilities of combining lay education with scientific presentations to county medical societies.
7. Compiling a listing of motion picture films available for the use of medical meetings.

During 1946 many of the component societies did begin regular meetings again after being interrupted because of the war. Some of the planned work of the Committee has not progressed far enough to have become effective but sixty-one requests from component societies for speakers have been filled since the 1946 Annual Session. In addition, many component societies have secured speakers for their scientific programs without using the services of this Committee. Other committees have been of great assistance not only in furnishing lists of speakers to the Postgraduate Committee but have assisted societies in obtaining speakers.

The listing of films available for medical meetings has been compiled and is being kept up-to-date in the office of the Association. The Committee will assist in obtaining use of films at any time it is requested to do so.

It is hoped that during 1947 more of the ambitions of the Committee may be put into effect and the Committee remains anxious to cooperate with component societies in arranging scientific programs and offers its service to societies in arranging their scientific programs. It is hoped that 1947 will be an outstanding year in society meetings and worthwhile programs presented.

R. O. Muether, Chairman,
Guy D. Callaway,
M. Pinson Neal,
John A. Growdon,
Edward Massie.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Publication, Ralph L. Thompson, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLICATION

January 1, 1946, to January 1, 1947

The 43rd volume of The Journal was completed with the December issue. During 1946 there were published in The Journal forty original articles, eleven case reports, four special articles, twenty-nine editorials, one hundred four news items, five organization activities, twenty-three miscellaneous articles, eighty-one obit-



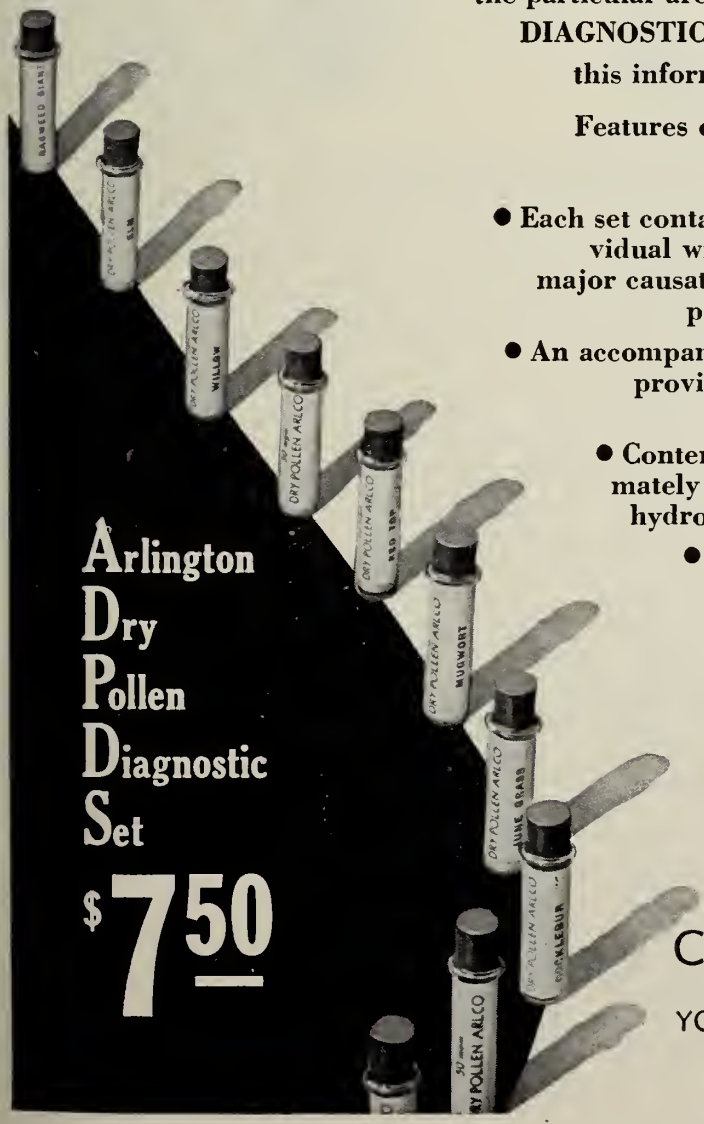
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Features of the ARLINGTON DRY POLLEN DIAGNOSTIC SET

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- **An accompanying regional pollinating schedule provides useful information on which to base testing procedures;**
- **Contents of each vial suffice for approximately 30 tests; a supply of N/20 sodium hydroxide is included for use as a diluent;**
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uaries, thirty-seven society proceedings, five Woman's Auxiliary articles, twelve abstracts, thirty-seven book reviews and six commercial announcements. There were 337 pages of reading material and 553 pages of advertising.

Advertising in The Journal from January 1, 1946, to January 1, 1947, earned $24,550.70. Subscriptions of nonmembers amounted to $56.30, making $24,607.00 earned by The Journal. The cost of production of The Journal (printing and illustrations) was $11,985.46.

Ralph L. Thompson, Chairman,
Everett D. Sugarbaker,
William H. Olmsted,
Vincent T. Williams,
G. V. Stryker.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Public Policy and Public Relations, Robert Mueller, M.D., St. Louis, follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND PUBLIC RELATIONS

The year 1946 saw significant extension of the Association's public relations program and a marked advance on the part of individual doctors and of county societies in understanding and using the facilities of the office of our public relations counsel, Thomas W. Parry and Associates.

The work of our public relations organization may conveniently be divided into two principal functions:

(a) Planning and consulting in the formulation of association policies, almost all of which, it grows daily more apparent, have a direct bearing on the nature of the relationship between the medical profession and the general public.

(b) Communicating the news of the association and the principles of organized medicine in effective and attractive form to the people of Missouri.

This report will consider briefly public relations achievements during the year in carrying out both these functions.

On the level of planning and policy formulation, representatives of our public relations office took part in all Council meetings of the year and maintained constant and close liaison with the state office. It would be safe to say that no association problem or policy of any consequence was considered during the year without the participation of our public relations counsel.

Projects worthy of special mention, in which public relations played an active part during the planning stage, included the year's successful program of Councilor District meetings and the program for veteran care. Increasing use of our public relations office by county societies in solving difficult public relations problems at the local level may be noted.

It is hoped that, in future, every group in the Association may make it a habit to call on our public relations people for advice and suggestions—and indeed for actual writing assistance—whenever a problem arises requiring a public statement or action by a component society. The value of such procedure has been demonstrated beyond question in the year past.

At the level of communication, the year saw important progress in telling effectively the story of organized medicine to the whole state. This is not the place to recount in detail the hundreds of news stories, photographs, special articles, radio broadcasts and other avenues of communication involved.

Special mention may be made, however, of the extensive summary of the Association's successful contributions to improving conditions of rural medical care during the year, which was distributed to every newspaper of the state. Also worth mentioning is the project to supply to weekly newspapers a column which tells valuably and directly the story of modern medicine in terms of the layman's own health.

Internal—no less than external—communication is important to the success of any program of public relations. The year 1946 witnessed significant progress in this regard. Our public relations representatives spoke widely throughout the state at Councilor District and Woman's Auxiliary meetings with the purpose of securing wider understanding of the public relations job to be done to win Missouri medicine an ever securer place in the public esteem.

Before closing, it may be of interest to note that the Association was represented by its public relations counsel at a discussion meeting in Chicago in February at which representatives of other state associations engaged in public relations programs were present. It was evident at this meeting that awareness of the importance of medical public relations is growing throughout the nation. It was further evident that the Missouri State Medical Association has assumed a position of pioneering leadership among state associations in this regard.

A final word may be said of the manner in which our public relations program is directed and orientated by the Association. First, daily contact with the Executive Secretary provides close integration of public relations activities with current Association concerns. Second, regular reports of progress are made at Council meetings. Third, discussion and overall control of major public relations projects are provided by meetings of the public relations committee as necessity requires.

Robert Mueller, Chairman,
W. Merritt Ketcham,
Robert A. Moore,
Llewellyn Sale,
Frank W. Hall.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Defense, C. E. Hyndman, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON DEFENSE

March 1, 1946, to March 1, 1947

Status of Cases

Cases pending March 1, 1946	4
New Cases	0
Cases settled	1
Cases pending March 1, 1947	3

The one case settled was settled out of court for $1,125.00. Three hundred dollars was paid the physician by the Association toward his expense in the case.

Charles E. Hyndman, Chairman,
O. B. Zeinert,
L. P. Forgrave,
Roland S. Kieffer,
L. F. Heimburger.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Cancer, E. C. Ernst, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON CANCER

The medical profession of Missouri, our State Medical Association and component County Medical Societies, should assume greater responsibilities in the future regarding the cancer needs of our state in cooperation with the proposed national cancer program of wider distribution and recognition of the accepted early signs, symptoms, diagnostic and most effective known treatment methods of this disease.

Local county or a combination of several state units could be individually and collectively organized toward



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There is usually a "plus" in the treatment of the menopause when "Premarin" is employed. The "plus" is the gratifying "sense of well-being" so many women experience following orally active "Premarin" therapy. It is the intangible factor which, added to relief of distressing symptoms, enables the middle-aged woman to resume her normal routine of useful and enjoyable occupations.

To permit flexibility of dosage and enable the physician to adapt oral estrogenic therapy to the particular needs of the patient, "Premarin" is supplied in three potencies:

Tablets of 2.5 mg. . . . . bottles of 20 and 100.
Tablets of 1.25 mg. . . . . bottles of 20, 100 and 1000.
Tablets of 0.625 mg. . . . . bottles of 100 and 1000.
Liquid, containing 0.625 mg. in each 4 cc. (1 teaspoonful)—bottles of 120 cc.

While sodium estrone sulfate is the principal estrogen in "Premarin," other equine estrogens . . . estradiol, equilin, equilenin, hippulin . . . are also present as water soluble sulfates. The water solubility of conjugated estrogens (equine) permits rapid absorption from the gastrointestinal tract.

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assuming the major part of these responsibilities in cooperation with the recently proposed new cancer service program of the American Cancer Society.

Four main objectives have been suggested by the American Cancer Society for increasing the educational facilities of the laity and the medical professions, and the equitable distribution of the available cancer funds collected by the various county units for increasing the cancer management facilities of the rural sections and the clinical medical research centers of our state.

The state chairman of the American Cancer Society, Dr. Louis Jorstad, has informed this committee that all of these suggested activities or objectives should initially be centered around any state-wide program only after a careful survey of the available facilities and requirements of the respective communities requesting aid has been completed and critically analyzed by the members of the State Cancer Committee.

These activities may include the following:

1. "Information Service Project"—a source of public information to the laity concerning cancer and the tumor services available in their particular community.

2. "Detection Centers"—where apparently well persons may receive a general physical examination by a selected group of competent specialists. The primary purpose of such a Detection Center is to disclose unsuspecting and precancerous lesions. There is still, however, a considerable degree of hesitancy on the part of your committee in recommending the promiscuous establishment of such detection center projects for the present, at least, because of the clerical and follow-up expenses involved, difficulties of obtaining the necessary available specialized medical personnel and, also, because of the fact that apparently a relatively large number of people must be examined in order to perhaps find only a small number of suspicious tumor lesions. Needless to state when suspicious lesions are discovered, the patient is referred to his family doctor for further study.

3. "Diagnostic Cancer Clinic"—where people may apply for an examination when complaining of possible symptoms and signs of suspicious tumors. This type of examination appears to be the more logical and fruitful field for the early detection of a greater number of malignant tumors.

4. "General Cancer Clinic"—for the establishment of diagnostic and treatment cancer facilities where the necessary medical personnel and equipment has already been provided. In the larger cities these objectives could be combined in a complete unit while in the smaller towns only an informative service project is the only needed initial activity.

Diagnostic clinics could be set up to serve a number of smaller towns and at a later date a single centralized nearby general cancer clinic could be established for those patients referred for consultation or treatment by these smaller diagnostic clinics.

In other communities supplementary activities likewise may be necessary, such as giving community assistance to the indigent cancer patients, administering palliative measures and care for the terminal-ill patients. All of these activities would involve the cooperative effort of the local medical profession, the hospitals, perhaps public health service, nursing service and other groups might be required to enter into these activities.

It should be emphasized, however, that this committee has been informed definitely by the American Cancer Society that its state or local divisions may not own or operate a clinic, laboratory, hospitals nor any other facilities for the care of cancer patients.

Therefore, your State Cancer Committee, the Council of the State Medical Association, through their respective district Councilors, or other appointed officials representing the Missouri State Medical Association should assume the greater responsibility of coordinating these future state-wide cancer activities.

Furthermore, all of the foregoing proposed new cancer programs must have the full approval of and be initiated by the local medical profession, the medical society of the county or district involved, and the State Cancer Committee of the Missouri State Medical Association.

Recommendations

1. In view of the foregoing, we believe that the fullest cooperation should be established between the Missouri State Medical Association and the American Cancer Society; the former representing the medical and the latter the lay interests in cancer throughout the state.

2. We would further recommend that the State Medical Association, through its cancer and postgraduate committees and the Council, initiate and sponsor cancer symposia and tumor clinical programs in the rural sections and other needed communities of our state, preferably coordinating such meetings with councilor district conferences.

Edwin C. Ernst, Chairman,
William E. Leighton,
Paul F. Cole,
E. Kip Robinson,
Everett Sugarbaker.

The report was referred to the Reference Committee on Miscellaneous Affairs.

The report of the Committee on Medical Economics, Carl F. Vohs, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

The Committee on Medical Economics met in Jefferson City on January 19 for the purpose of reviewing the activities of the Association in the field of medical economics since the last Annual Session and for the consideration and recommendation of changes. The following report is submitted for your consideration.

Kansas City Blue Cross Hospital Service

The first full postwar year was one of intense activity in the expansion of prepaid health care in the Western Missouri area. Bearing in mind the fact that the Blue Cross Hospital Plan and Surgical-Medical Care serve only nineteen of the state's one hundred fifteen counties, year-end membership totals were in excellent ratio to population.

The Blue Cross Plan began the year 1946 with 132,213 members. During the year there were enrolled 63,302 new members. There were 185,029 members at the end of the year, thus indicating a total of 10,485 cancellations in the period.

A good portion of the increase came from rural areas, with the membership through the Farm Bureau Federation increasing from 9,187 to 11,623.

Blue Cross income for the year totaled $1,025,973.57. On July 1, 1946, an adjustment of a 20 per cent increase was made to member hospitals due to an increase in operating costs in about the same percentage. Heavy factors of utilization and the increase in hospital payments resulted in the payment of $883,665.71, or 88 per cent of income, for hospital care.

Operating expenses was consistently lowered throughout the year, dropping to 13.2 per cent of income by December 31, 1946. Therefore, despite the high utilization, there was only a small operating loss. This situation will correct itself quickly, as the Trustees, after careful study, instituted an increase in membership rates starting December 1, 1946, to be effective throughout the year as group anniversary dates occur. As the Blue Cross Plan enters 1947, continuing studies are being made of hospital costs so that any proper steps can

be taken in adjustment of payments for care of members.

Surgical-Medical Care

The Surgical-Medical Care Plan has grown rapidly and had a membership of 114,186 at December 31, 1946. A total of 70,021 persons were enrolled during the year. There were 12,129 membership cancellations.

This program has had good acceptance by the medical profession, with 97 per cent of physicians cooperating. Progress has been excellent in the rural areas, both in enrollment and in physician support. Again, the outstanding assistance of the Farm Bureau Federation is in evidence, there being 3,966 'members through the Federation as compared with 700 a year ago.

The Plan's total income for the year was $693,226.91. Of this amount, $491,700.70, or 71 per cent, was required in payment of care for members.

The officers of the plan attribute the substantial growth in both rural and urban areas not only to the splendid support of nearly 1,000 physicians and endorsement by the public, but also to the fact that any procedure in the surgical-orthopedic-obstetrical category is allowable in the member's home, physician's office or the hospital.

Among the unusual features of the plan is the liberal allowance made in the field of x-ray treatment and radiation therapy.

The Plans with headquarters in Kansas City have several expansion programs outlined for 1947, including much additional enrollment in rural areas.

St. Louis Blue Cross

With the end of hostilities during the last part of 1945 and the resultant termination of war contracts, changes in residence and places of employment of Blue Cross members, we experienced a very unusual and challenging year during 1946.

It was our duty to make certain that every Blue Cross and Missouri Medical Service member be given an opportunity to retain this voluntary protection without interruption. Our Retention and Transfer Department accepted the challenge and did an admirable job.

Many in the field felt that cancellations in large volumes would follow and that new enrollments would be retarded seriously. This proved to be erroneous.

New enrollments continued at a high and very acceptable rate in spite of the fact that in May 1946 we discontinued active solicitation of new groups so as to allow for a complete revision and refinement of office, accounting and billing procedures.

At the beginning of the year 1946, we had an enrollment of 544,509 persons. By December 30, 1946, this was increased to 754,931 members, or a net gain of 210,322 persons. In the Missouri Farm Bureau Federation groups alone, membership was increased from 15,114 in December 1945 to 19,918 on December 30, 1946, a net gain of 4,804 persons.

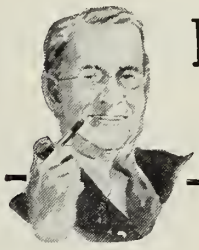
Income for the year was $4,312,569.79. Hospitalization during the year was considerably higher than the three preceding calendar years and amounted to $3,652,279.26, or 84.7 per cent of income. An emergency increase in payments to member hospitals was made effective on all admissions on January 1, 1947, and thereafter. Continuing studies are being made by the Hospital Committee to determine the adequacy of payments.

Due to the large volume of transfers between groups and our sincere desire to assure our members of conuous protection, additional employees were necessary; and, as a result, operating expense showed a slight increase to 14.3 per cent.

Missouri Medical Service

This plan was launched in April 1945 and the first group was enrolled with service effective April 1945. After the first seven months of operation, or on December 30, 1945, a total of 20,174 persons were enrolled.

Medical Advertisement



From where I sit
by Joe Marsh

How to Go to Sleep

We were sitting around Bill Webster's parlor Friday evening and the talk turned to the best way of overcoming sleeplessness . . . like breathing real slow, imagining that you weigh a ton, or simply throwing away the pillow.

The consensus favored counting sheep. But right away was the question: what *kind* of sheep? There were some votes for Merinos, Shropshires, Oxfords and Dorsets. Ed Carey said he had best luck counting crossbreeds.

Finally, Bert Childers spoke up with his formula: A light snack and a mellow glass of beer at bedtime. Sort of puts you in the right mood for quiet thoughts and peace of mind. Lets you relax . . . and "ho hum," off to pleasant dreams!

From where I sit, there's nothing like a temperate glass of beer to smooth away the creases of the day, relax a body, and pave the way for a good night's sleep. Try it some night, and see if I'm not right.

Joe Marsh

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There has been a substantial growth in membership in 1946; and at the end of the year, 67,986 persons were protected, an increase of 47,812 persons, of 237 per cent.

Income was $393,243.23; and of this, $190,205.42 was paid for medical and surgical care. This represents 48.7 per cent of income.

An intensive enrollment campaign has been planned for the year 1947; and with the splendid support of industry, hospitals and the medical profession, we predict a much greater percentage enrollment growth than that experienced in 1946.

The Executive Committee is now in the process of considering substantial increase in benefits to its subscribers.

The Committee recommends that a special committee be appointed. to study the Workmen's Compensation law and lien laws of Missouri for the purpose of recommending desirable changes.

Carl F. Vohs, Chairman,
George A. Aiken,
Ira H. Lockwood,
C. A. W. Zimmermann,
W. A. Bloom.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Mental Health, E. F. Hoctor, M.D., Farmington, Chairman, follows:

REPORT OF THE COMMITTEE ON MENTAL HEALTH

The Committee on Mental Health met on the afternoon of January 29, 1947, at the Jefferson Hotel, St. Louis. Those present were Drs. F. M. Grogan and A. B. Jones, St. Louis; F. M. Maples, Marshall; E. F. Hoctor, Farmington, and Mr. Tom O'Brien, St. Louis.

It was recommended: That immediate and serious consideration by the Governor and the Legislative Body be given to the overcrowding of the mental hospitals in the state, including the Missouri State School, and their inability through lack of space and limited medical and nursing personnel to care for those seeking treatment, and provision made for relief; adequate appropriations made for the better and more scientific care of patients through additional well trained medical and nursing personnel, and the patients' needs humanely looked after; the creation of live and active hospitals where work can be done on the spot and according to the needs of the locality, and where research work in the field of mental disease and defect can be pursued aggressively.

Buildings should be provided in sufficient numbers to care for the net annual increase, without which there results an accumulation in county homes of a large number of helpless cases, just the kind that frequently need the most attention and the greatest care. Since hospitals are built for the purpose of supplying future as well as present needs, it would seem the issuance of bonds would be advisable; the cost then would be spread over a series of years and would cease to be a heavy burden to the taxpayer. Unless some such method is adopted, no broad and comprehensive policy for the care of the insane can be undertaken, and inadequate and makeshift methods will continue to prevail. In addition, adequate housing of the staff and personnel should be provided to attract and retain desirable medical and nursing help.

In any consideration of new legislation, the superintendent, a medical man with special training in psychiatry, should be the chief executive; the business agent of the institution, a position now designated as steward, should be subordinate to the Superintendent.

E. F. Hoctor, Chairman,
B. Landis Elliott,
Frank M. Grogan,
A. B. Jones,
F. M. Maples.

The report was referred to the Reference Committee on Miscellaneous Affairs.

The report of the Committee on Maternal Welfare, E. Lee Dorsett, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MATERNAL WELFARE

The Committee on Maternal Welfare has confined its activity to the annual Maternal Welfare luncheon meeting which is held each year at the Annual Session of the Association.

The Committee has cooperated in every way with the Postgraduate Committee to furnish speakers on obstetric subjects to the component county societies.

Individually, the members have cooperated with the American Federation of Obstetrics and Gynecologic Societies and the American Committee on Maternal Welfare. We also are making arrangements for the meeting of the American Congress on Obstetrics and Gynecology which will meet in St. Louis on September 8 to 12, 1947.

It is hoped that the Association will accept a resolution which will be presented at this Session to separate the scientific program into separate sections, one of which will be the Section on Obstetrics and Gynecology. If this resolution is adopted and a Section on Obstetrics and Gynecology is formed, the Committee then feels that there will be no further need for the Maternal Welfare luncheon.

This year we have as the guest at the Maternal Welfare luncheon and the State Association, Herman W. Johnson, M.D., Professor of Obstetrics and Gynecology of Baylor University, Houston, Texas.

E. Lee Dorsett, Chairman,
Paul F. Fletcher,
E. E. Wadlow,
J. L. Johnston,
J. Milton Singleton.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Constitution and By-Laws, Joseph C. Peden, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

The following amendments of the By-Laws are submitted to the House of Delegates:.

Amend Sec. 3, Chapter I, by adding the words "showing that dues for the current year have been paid" so that the Section will read:

Sec. 3, Chapter I—Membership

Sec. 3. Each member in attendance at the Annual Session shall register when his right to membership has been verified by reference to the records of this Association showing that dues for the current year have been paid. No member shall take part in any of the proceedings of the Annual Session until he has complied with the provisions of this section of the By-Laws.

Chapter III—House of Delegates

Amend Chapter III—House of Delegates, by striking out Sec. 6 which reads "The House of Delegates shall upon application provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws" since in Sec. 5 of Chapter VI and in Sec. 1 of Chapter XI this power is given to the Council and the Council can act oftener than once a year; and changing Sec. 7 of Chapter III to Sec. 6, Sec. 8 to Sec. 7, Sec. 9 to Sec. 8 and Sec. 10 to Sec. 9.

Amend Sec. 9, Chapter III, by changing the word



1. Extensive clinical experience has established that the combined use of an occlusive diaphragm and a spermatocidal jelly affords the optimum in protection to the patient.

2. A comprehensive report shows an overwhelming preference for the diaphragm-jelly technique of conception control. In a survey comprising 36,955 cases, clinicians prescribed this method for 34,314 or 93 per cent.[1]

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4. For the optimum of protection and simplicity in use we suggest the "RAMSES" Prescription Packet NO. 501 . . . a complete unit, containing a "RAMSES" Patented Flexible Cushioned Diaphragm of prescribed size, a "RAMSES" Diaphragm Introducer of corresponding size, and a large tube of "RAMSES" Vaginal Jelly.† Available through all prescription pharmacies. Complete literature to physicians on request.

[1]Human Fertility 10: 25 (Mar.) 1945.

[2]Warner, M. P.: J.A.M.A. 115: 279 (July 27) 1940.

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"ensuing" to "current calendar" so that the Section will read:

Sec. 9, Chapter III—House of Delegates

Sec. 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the current calendar year which shall have been prepared by the Council and submitted to the component county societies by publication in The Journal before March 31 of each year.

Amend Section 1, Chapter IV, by changing the words "President for the succeeding year" to "President-Elect" so that the Section will read:

Sec. 1. Chapter IV—Election of Officers

Section 1. The President on the first day of the Annual Session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same Councilor District. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session excepting the President-Elect who shall be nominated from the floor of the House of Delegates. On the adoption of this section the nomination of the President-Elect shall be made from the floor of the House. Each candidate for Councilor must reside or practice in the district for which he is nominated.

Amend Sec. 3, Chapter IV, by changing the word "ballot" to "acclamation unless ballot is called for" so that the Section will read:

Sec. 3. Chapter IV—Election of Officers

Sec. 3. All elections of officers shall be by acclamation unless ballot is called for and a majority of the votes cast shall be necessary to elect except for delegates and alternates to the American Medical Association. In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected. In case no delegates or alternates for the American Medical Association receive on the first ballot a majority of the votes, the nominees shall be declared elected in the order of the highest number of votes received until the allotted number shall have been chosen. In case of a tie vote for delegate or alternate, the tie shall be determined by lot.

Amend Sec. 2, Chapter VI, by inserting in the last sentence following the word "statement" and preceding the word "but" the words "submitted monthly and within the current year" and adding to the section "No Councilor shall be eligible for the position of Delegate to the House of Delegates during his term of office as Councilor" so that the Section will read:

Sec. 2. Chapter VI—Council

Sec. 2. Each councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exists, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the Council. The necessary traveling expenses incurred by each Councilor in the line of duties herein imposed may be allowed on a proper itemized statement submitted monthly and within the current year, but this shall not be construed to include his expense in attending the Annual Session of the Association. No Councilor shall be eligible for the position of Delegate to the House of Delegates during his term of office as Councilor.

Amend Sec. 7, Chapter VI, by inserting after the word "year," the words "for the following calendar year" so that when amended the Section will read:

Sec. 7. Chapter VI—Council

Sec. 7. The Council shall provide for and superintend the issuance of all publications of the Association including proceedings, transactions and memoirs, and shall have authority to appoint an Editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, for the following calendar year, and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter III. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer.

Joseph C. Peden, Chairman,
B. Landis Elliott,
J. H. Summers,
J. W. Thompson.

The report was referred to the Reference Committee on Constitution and By-Laws.

The report of the Committee on Fractures, Daniel L. Yancey, M.D., Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON FRACTURES

The Committee on Fractures of the Missouri State Medical Association held their first meeting on December 1, 1946, at the Coronado Hotel in St. Louis.

Plans and methods were discussed for disseminating modern treatment of fractures throughout the state. The Fracture Committee is cooperating with the Postgraduate Committee in securing speakers in various parts of the state who will speak on modern methods of fracture treatment before the various county societies.

It is the aim of the Committee to have at least one program on the treatment of fractures before each County Medical Society in the state.

In cooperation with the editorial staff of The Journal of the Missouri State Medical Association, we are devoting one issue of The Journal to the care and treatment of fractures.

It is hoped that within a short time there will be established a consultant service in the various parts of the state that will be within reach of all the hospitals however remote from the metropolitan centers.

An early issue of The Journal will present in more detail some of the things the Committee is trying to accomplish.

Daniel L. Yancey, Chairman,
William Ranke Bohne,
Nicholas Stark Pickard,
William J. Stewart,
J. Albert Key.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Conservation of Eyesight, C. Souter Smith, M.D., Springfield, Chairman, follows:

Some things you would like your patients to know ***about Epilepsy***

The educational message on Epilepsy, shown below, will appear in full color in LIFE and other national magazines . . . reaching an audience of more than 22 million people. This is No. 205 in the "See Your Doctor" series, published by Parke-Davis in behalf of the medical profession.

Some things you should know about epilepsy

No. 205 in a series of messages from Parke, Davis & Co. on the importance of prompt and proper medical care.

EPILEPSY is one of the most widely misunderstood of all diseases.

Many people believe that there's no effective treatment for it, that it's a kind of feeble-mindedness, that it always becomes worse as the patient grows older, and that he has no chance of leading a normal life.

Your doctor, however, will tell you these ideas are false.

The truth is that medical science has accomplished a great deal in its attempt to control epilepsy, and today the outlook for most persons who have the disease is distinctly hopeful.

What is epilepsy?

In broad and simple terms, epilepsy is a disorder in which the patient suffers recurrent nervous seizures. These seizures—usually characterized by muscular convulsions and sometimes by the loss of consciousness—vary greatly in frequency, duration, and intensity.

The fundamental cause of epilepsy is unknown, although a variety of contributing causes have been established.

Contrary to popular belief, heredity as a rule does not play the major role in epilepsy. The chances that an epileptic will have an epileptic child are only about one in forty.

Can epilepsy be controlled?

Epilepsy most often begins in childhood or adolescence. In times gone by, a diagnosis of epilepsy was a dreadfully heavy blow. But today the doctor can usually give the parents—and the child—much encouragement and hope. The following figures explain why this is so:

In approximately one out of six cases, the disease eventually disappears—and disappears completely.

Where the disease does not disappear, nearly 50 per cent of the patients are—with proper medical care—entirely free of seizures. Another 25 per cent or so can be almost entirely free, and can lead a virtually normal life.



The treatment of epilepsy

In most cases, modern drugs are the doctor's chief weapon. *Only the doctor knows which drug or drugs should be used, and in what dosage.*

Using these medicines, the doctor has been able to give epileptics a new lease on life. Once haunted by the threat of seizures and the danger of gradual mental deterioration, they often spent their days in tragic seclusion. But now most of them can lead normal lives. They can work, swim, dance, and play golf or other games. Children can go to regular schools and are able to study and play on a par with their schoolmates.

SEE YOUR DOCTOR! If you or your children ever experience a seizure — however mild — *see your physician promptly.* With epilepsy, as with any other disease, he can be of greatest help when you give him a chance to fight the ailment in its *earliest* stage.

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REPORT OF THE COMMITTEE ON CONSERVATION OF EYESIGHT

Much of the work of the Committee on Conservation of Eyesight is demonstrated in a scientific exhibit at the Session, which has been prepared with the aid of the Missouri Bureau for the Blind and the Missouri School for the Blind. The Committee has cooperated with the Missouri Bureau for the Blind during the year.

A survey of the status of vision testing in schools was conducted by the Committee and results of that survey are listed in connection with the exhibit. Methods of promoting vision testing in schools is being studied by the Committee.

During the year the Committee has cooperated with the Committee on Postgraduate Course by obtaining speakers for the use of the Postgraduate Committee in furnishing speakers to component county medical societies.

The Committee is studying the question of reporting of visual disabilities and is making a study of laws in other states in which laws have facilitated the prevention of blindness. Also the Committee has studied the laws in several states in regard to legislation on contact lenses and asks that the House of Delegates approve the opposition to any legislation which may be introduced in Missouri which would take this work from under the supervision of the ophthalmologist.

The Committee is working on an educational program on glaucoma and an industrial eye conservation program.

C. Souter Smith, Chairman,
Robert S. Minton,
Robert Mattis,
A. N. Lemoine,
C. P. Dyer,
Glenn J. Tygett,
George A. Hornback,
Philip S. Luedde,
W. M. Bickford,
Harry B. Stauffer.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Industrial Health, V. T. Williams, M.D., Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON INDUSTRIAL HEALTH

The Committee on Industrial Health met on January 12, 1947. At this meeting, which was attended by the full committee, H. R. Hennessy, M.D., Consultant on Industrial Health of the American Medical Association Council on Industrial Health, was present and discussed national and state industrial health problems.

A resolution was adopted by the Committee commending the fine work of the former Chairman of the Committee, H. I. Spector, M.D., St. Louis, who devoted considerable time and energy to the problems of industrial health prior to his death July 6, 1946.

In the report of the Committee published in 1946 considerable data was available regarding the industries of Missouri. It was thought best to again bring this information to the attention of the members.

1. Number of Industries in the State

The number of industries in the state exclusive of agriculture, forestry and fishing follows:

Construction	1,164
Mining	243
Manufacturing	2,848
Transportation, Communication and Utilities	669
Wholesale and Retail	5,385
Insurance, Finance and Real Estate	1,144
Personal Service	1,768
Miscellaneous	2
Total	13,223

2. Full or Part Time Health Service

The information regarding industries having full or part time health service in the state as a whole is not at the present time complete. In general it may be said that every industry in the mining, construction and manufacturing fields has at least a doctor on call. Scott Johnson, Chief Public Health Engineer of the State Division of Health, estimates that between 20 and 30 per cent of the plants in these three fields have full time or part time physicians.

3. Recommendations of the Committee

The big problem now is to maintain health of the workers. With this problem in mind, the Committee unanimously agreed to recommend to the House of Delegates the following program:

1. That the Missouri State Medical Association urge its members to report known cases of industrial diseases to the local health departments. (In this connection it is well to mention that physicians generally speaking do not adequately report other contagious diseases to health departments. The Committee will attempt to secure reporting forms which will be simpler to fill out).

2. That the Association urge the responsible persons or committees in the official agencies, both city and state, to appropriate sufficient funds for the maintenance of an efficient department on industrial hygiene.

3. That the Association urge the medical schools of the state to broaden their programs for undergraduate and postgraduate teaching of industrial health. A committee has been appointed to discuss this situation with the deans of the two medical schools located in St. Louis.

4. That the Association include in its future scientific programs a symposium on industrial health or invite a nationally known speaker to present a subject of interest to the general practitioner on industrial health. Note that a symposium on this subject is included at this Annual Session. Nationally known speakers are on the program who will give well rounded views on the subject "Industrial Health."

5. That the Association recommend to the County Medical Societies to appoint committees on industrial health to work with the state Committee on Industrial Health.

6. That the Association urge industry to require a pre-employment physical examination including an x-ray of the chest, since it is the opinion of the Committee that no examination of the chest is complete without an x-ray, and that periodic health examinations be made including x-ray of the chest.

7. That the Association urge industry to make provision for employing the physically handicapped individuals provided they are not infectious to anyone.

8. That County Medical Societies appoint committees for the purpose of cooperating with the Workmen's Compensation Commission in reviewing medical testimony in cases in which questionable testimony is given.

9. That the Editor of The Journal of the Missouri State Medical Association be requested to devote an issue of The Journal each year to industrial health.

In conclusion, the Committee again wishes to state that the efforts of the local and state health departments in the field of industrial health are sincerely appreciated and also wishes to thank them for their whole hearted cooperation.

Vincent T. Williams, Chairman,
R. R. Oglevie,
A. M. Ziegler,
Charles R. McAdam,
E. M. Fessenden.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Physical Medicine, F. H. Ewerhardt, M.D., St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PHYSICAL MEDICINE

A year ago the Committee on Physical Therapy submitted a report which dealt largely with the promotion of Mr. Baruch's project to present the facts of physical therapy to the minds of the deans of the seventy-two medical schools. It can now be reported that a great deal has been accomplished and that physical therapy, more specifically physical medicine, has taken on a new significance.

This is especially true with respect to the Army and Veterans Hospitals. We do not now think in terms of physical modalities but instead we think of medical rehabilitation. This is also spoken of as the third phase of medical treatment and has reached such importance that the Army has placed it on an equal footing with surgery and medicine. When one goes through an Army or Veterans Hospital today one begins to see the significance of this term. The medical staffs which only nine months ago were quite unaware of the meaning of medical rehabilitation, now have become very much conscious of it and for the most part are lending their fullest support to the program.

This program is comprised of physical therapy, occupational therapy, corrective physical rehabilitation, educational retraining and pre-vocational training. Each is headed by a chief and the whole coordinated by a doctor of physical medicine or, if not available, a member of the medical staff with the title Physician-in-Charge, Medical Rehabilitation. Outside veteran and army circles there are some who have become conscious of the need of applying a similar program to civilians and already one hears of plans being drawn for the construction of convalescent hospitals which will, to a large extent, carry on a program as mentioned.

Recent statistics show there are some twenty-three million disabled men, women and children who, for the most part, could be rehabilitated and become self-sustaining. From an economic standpoint such a program is sound since it would actually save money for the taxpayers.

The name of the committee should now read "Committee on Physical Medicine" to conform with the American Medical Association.

F. H. EWERHARDT, Chairman,
JOHN L. WASHBURN,
FRANK L. FEIERABEND,
C. A. W. ZIMMERMANN,
C. H. CREGO.

Upon motion, duly seconded, the report was accepted.

The report of the Committee on Tuberculosis, E. E. Glenn, M.D., Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON TUBERCULOSIS

The Committee on Tuberculosis held one formal meeting, on March 30. Actions were taken then to crystalize the concensus of the discussions and correspondence carried on by the membership during the last year.

The Committee begs to report that two scientific sessions were held during its term of office. The first, on October 19, at Jefferson City, was a dinner meeting. On March 30, the entire day and evening were devoted to papers and an x-ray conference on diseases of the chest. The complete program for the March meeting was carried in THE JOURNAL.

THE JOURNAL has cooperated further by carrying the

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monthly abstracts on tuberculosis secured by the Missouri Tuberculosis Association from the National Tuberculosis Association.

There has been much discussion with the executive officers of the Missouri State Medical Association of the willingness of the Committee to correlate the various groups interested in tuberculosis in preparing programs for medical meetings throughout the state. It has not been practical to put the plans into operation this last year.

Members of the Committee have made it their business to be in close touch with the activities of the several tuberculosis hospitals in the state to the end that the physicians of the state might be best served.

The Committee on Tuberculosis reports its endorsement of two resolutions submitted to the Council of the Missouri State Medical Association by the Missouri Tuberculosis Association. These resolutions in substance approve the modernization of the sanatorium at Mount Vernon and the utilization of competent nursing personnel in tuberculin surveys and further emphasize the fact that the state lacks 1,500 beds for the tuberculous.

The Committee desires to make the following recommendations:

In view of the modern concepts of tuberculosis hospital construction and operation it urges the consideration of the official agencies involved to the end that the state tuberculosis hospital located at Mount Vernon be called a "state hospital for diseases of the chest."

The Committee, pointing out that advances in therapy and management of the tuberculous have made the utilization of laboratory facilities mandatory and critical, recommends that all encouragement possible be given the state laboratory to achieve the highest possible efficiency through possession of the optimum facilities and personnel, particularly in regard to the complete examination of sputum.

The Committee, while acknowledging the invaluable contributions to tuberculosis control and the part of both official and nonofficial tuberculosis sections or organizations, desires to make clear that in the opinion of authorities the private physician is the most important single agency in the control of this disease.

The Committee heartily endorses the principles of case finding through mass x-ray surveys, having through experience found that it is of benefit to the practice of the private physician as well as being sound epidemiologically.

It urges the Association actively to continue its role of furnishing medical guidance to both official and nonofficial groups interested in the control of tuberculosis. This is particularly incumbent because of the valuable and necessary part in the education of the public through community organization that must be performed by the tuberculosis associations, as well as the dramatic role of the official health departments in the operation of the x-ray survey equipment. The cooperative participation in planning of surveys is a community responsibility of organized medicine.

The Committee wishes to report the closest cooperation on the part of official and nonofficial tuberculosis groups of the state and the desire of those groups to be of mutual assistance.

E. E. Glenn, Chairman,
James L. Mudd,
L. E. Wood,
H. L. Mantz,
A. C. Henske.

This report was referred to the Reference Committee on Miscellaneous Affairs.

The report of the Council, J. W. Thompson, M.D., St. Louis, Chairman, follows:

REPORT OF THE COUNCIL

Meeting of March 26

Drs. H. E. Petersen, St. Joseph; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto Koch, St. Louis; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; C. Edgar Virden, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; H. B. Goodrich, Hannibal, were present.

Dr. Goodrich, as President, called the meeting to order. Upon motion, Dr. J. W. Thompson was elected chairman of the Council.

Upon motion, Dr. Wallis Smith was elected vice chairman of the Council.

Dr. Thompson introduced the new members of the Council as follows: Dr. W. F. Francka, Hannibal, 2nd District; Dr. Otto Koch, St. Louis, 4th District; Dr. J. F. Jolley, Mexico, 5th District; Dr. C. Edgar Virden, Kansas City, 7th District.

Upon motion it was decided to leave further business of the Council until the next meeting.

Meeting of May 4

Drs. H. E. Petersen, St. Joseph; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto Koch, St. Louis; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; Howard B. Goodrich, Hannibal; Morris B. Simpson, Kansas City; R. L. Thompson, St. Louis; C. E. Hyndman, St. Louis; Robert Mueller, St. Louis; R. E. Schlueter, St. Louis; Curtis H. Lohr, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. Lemoine Skinner, St. Louis; Mr. Raymond McIntyre, St. Louis; Mr. T. R. O'Brien, St. Louis, were present.

Upon motion of Dr. Baldwin the dates of the Annual Session were approved for March 30, 31, April 1, 2, 1947. The Chairman named the General Committee on Arrangements as follows: Drs. C. Edgar Virden, Kansas City, Chairman; R. W. Kennedy, Marshall; H. E. Petersen, St. Joseph. It was decided to suggest to the Program Committee that programs on different phases of medicine be presented simultaneously and that out of state guests be invited.

Dr. Howard B. Goodrich, President, announced committee appointments. The appointments were approved.

Upon motion of Dr. Petersen, it was decided to carry the Committee on Rural Medical Service in The Journal. Dr. George W. Newman, Cassville, and Dr. A. L. Hansen, Appleton City, were added to the Committee.

Dr. Thompson named the following Committee on Publication which was approved: Drs. R. L. Thompson, St. Louis, Chairman; Vincent T. Williams, Kansas City; G. V. Stryker, St. Louis; Everett D. Sugarbaker, Columbia; William H. Olmsted, St. Louis.

Mr. Skinner reported on the work in public relations done during and since the Annual Session including series of stories for newspapers throughout the state on the annual session localized for papers; series on Blue Cross in St. Louis and Blue Cross in Kansas City; series of stories on Missouri Medical Service and Surgical Care, Inc.; stories on the annual session; stories on essay contest; magazine article for the Missouri Druggist; pamphlets on annual session; pamphlet on Missouri Medical Service. Mr. Skinner stated that the Association had been complimented by the editor of one of the St. Louis newspapers for the handling of the scientific material during the annual session.

The following letter from the A. M. A. was read: "To Secretaries of the Constituent State Medical Associations: The Committee on National Emergency Medical Services of the A. M. A., which was appointed in accordance with the recommendations of the Board of Trustees adopted by the House of Delegates at its meeting held in December, 1945, has requested the Board of Trustees to give them permission to suggest that each constituent association appoint a similar com-

On the Plus Values In Variety Meats

Variety meats—as the meat industry terms liver, kidney, heart, thymus (sweetbreads), and tongue—are at least as nutritionally desirable as muscle meat. In fact, in some respects certain organ meats are superior.

They provide the indispensable amino acids in the same advantageous complete assortment as muscle meat. Hence their protein is of the same high biologic value, capable of meeting every protein need of the organism. Quantitatively their protein content is approximately equal to that of muscle meat.

For hemoglobin synthesis, liver and kidney have been found superior not only to all other protein sources so far studied but also to muscle meat itself.

All organ meats are good sources of the B-complex vitamins. Some of them, such as liver and kidney, are especially rich in niacin. Liver is also an excellent source of vitamin A.

Apparently the vital role these organs play in the functioning of the animal body is reflected in the valuable contribution they can make to human nutrition. Their frequent inclusion in the human dietary—during disease as well as in health—is amply justified.

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mittee. This request has been approved by the Board. The recommendation adopted by the House of Delegates is as follows: 'The Board of Trustees would recommend to the House of Delegates that it authorize the Board of Trustees of the A. M. A. to appoint a committee of seven to be known as the Committee on Military Service. This committee shall include four civilian physicians who served in the war and three others. The committee will study the many communications that have been received and the suggestions made by physicians in the armed services. The committee will also formulate policies for recommendations to be forwarded through the Surgeons General to the Secretary of War and the Secretary of the Navy expressing the views of the medical profession in planning for the proper utilization of the services of physicians in any national emergency.'" After discussion action was withheld until the next meeting of the Council.

A letter from a St. Louis printing company was presented suggesting that that company publish a directory of Missouri physicians. After discussion, upon motion it was decided that the Association should publish its own roster number but delay it until January because of the number of changes in location that are taking place at the present time.

Dr. Robert Mueller was presented a watch by the Council in appreciation of his services in Procurement and Assignment Service. The presentation was made by Dr. Curtis H. Lohr. Dr. Mueller in accepting the watch reported that approximately 1,200 physicians entered service from Missouri and that 70 per cent of physicians under 38 years of age were in service.

A letter from a member asking the ruling of the Association upon consultation with osteopaths was read. After discussion by Drs. Smith, Baldwin, Lohr, J. W. Thompson, Mueller, Schlueter, upon motion the following committee was appointed to study this question and report back to the Council: Drs. Wallis Smith, Chairman, Baldwin and Francka.

Mr. Chester Starr, Director of Rural Health of the Missouri Farm Bureau Federation, spoke in support of H. B. 280 which is enabling legislation for county health centers and asked support of the Association in carrying out the purposes of the bill. He said that eight area meetings of the Farm Bureau would be held beginning in July at which the services of the county health unit would be discussed and asked the cooperation of the Council in these meetings. He discussed H. B. 459 briefly and asked assistance in getting passage of this bill.

Mr. O'Brien discussed H. B. 459 and the Hill-Burton bill briefly. He announced that H. B. 349, creating the Department of Public Health and Welfare under a director, was signed by the Governor on May 2, and explained the bills creating a Division of Registration and Licensure in the Department of Education and that an attempt was being made to consolidate all registration and licensing under this division.

Drs. Goodrich and Smith reported on the conference in Washington with Senators Donnell and Briggs and Col. Graham, physician to the President, and the presentation to the President of Missouri's program in medicine.

Dr. R. L. Thompson, St. Louis, was nominated by Dr. Smith for Secretary-Editor. Upon motion of Dr. Baldwin the nominations were closed and the Chairman cast the unanimous ballot for Dr. Thompson for Secretary-Editor. Dr. C. E. Hyndman, St. Louis, was nominated by Dr. Baldwin for Treasurer. Upon motion of Dr. Petersen the nominations were closed and the Chairman cast the unanimous ballot for Dr. Hyndman for Treasurer.

Meeting of May 5

Drs. Petersen, Thompson, Koch, Jolley, Kennedy, Smith, Bohrer, Baldwin, Goodrich, Simpson, Thompson, Schlueter; Messrs. Bartleson, Skinner, McIntyre, O'Brien, Drs. A. R. McComas, Sturgeon; James R. McVay, Kansas City; Carl F. Vohs, St. Louis; E. J. Schisler, St. Louis; E. C. Ernst, St. Louis, were present.

Dr. Kennedy reported on the first annual meeting of the National Conference on Rural Health held in Chicago on March 30, under the direction of the A. M. A. in cooperation with the American Farm Federation and other farm groups. The purpose of the conference was to work out a program of procedure with farm groups for improvement of rural medical services. The following needs of rural areas were discussed: surveys to determine where medical service is lacking; extension of prepaid plans for payment of medical services; more hospitals and health centers; more doctors and nurses; better roads and extended ambulance service; economic condition of rural areas.

Dr. Baldwin told of contacting a hospital consultant in Chicago and recommended that consultant service was valuable to any community considering erecting a hospital for the advice obtained on needs of the community, size and plan of hospital and equipment. He said that Dunklin County had sold bonds amounting to $350,000 for erection of a hospital; that Pemiscot County had voted a bond issue; that Sikeston in Scott County was to have a Commonwealth Hospital; that Perry County and Stoddard County were interested in erecting hospitals. County hospitals were discussed with the fact that the public trend is toward erecting hospitals and that M.D.'s should lead in this move; that hospitals should be located in natural trade centers; that while hospitals are needed, care should be exercised that unnecessary hospitals are not erected. It was reported that hospitals were under consideration in Andrew, and Lafayette counties, at Lamar and at Centralia.

Dr. Vohs reported that Missouri Medical Service now covers 545 groups with 52,217 persons; that monthly enrollment should now be from 2,000 to 3,000 contracts monthly plus dependents; that the financial condition of the plan was very sound.

Mr. McIntyre reported on several trips he had made to county society meetings or to contact physicians in counties. He said that Lincoln, St. Charles and Warren counties are proposing to hold combined scientific meetings. He suggested that in many cases it would be better for societies to hyphenate in order to have more active societies and Councilors were asked to study the situation in their districts and be in position to discuss hyphenation at the next meeting of the Council.

Dr. McComas complimented Dr. Vohs on his report on Missouri Medical Service and urged physicians to cooperate. Dr. Schlueter urged the Council to keep the A. M. A. delegates informed at all times of State Association activities. Dr. McVay discussed national legislation and urged that the reports of the hearings appearing in *The Journal of the A. M. A.* be read.

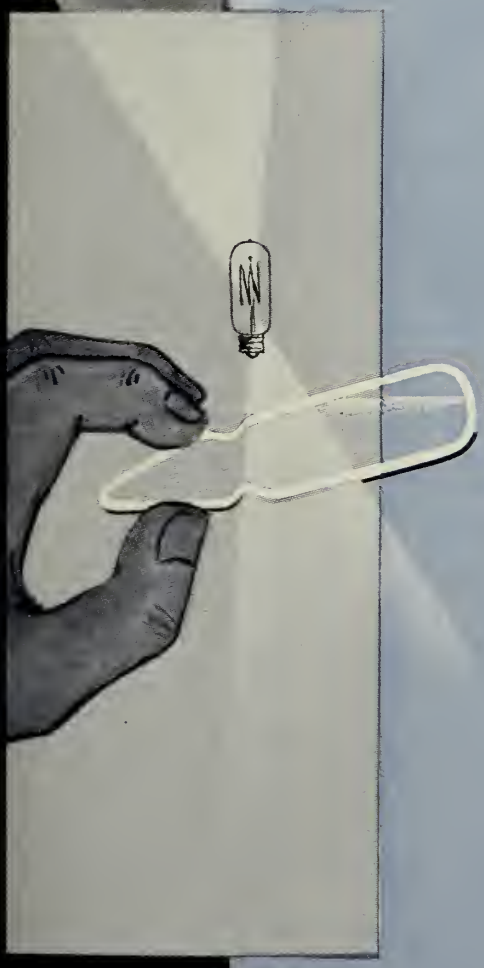
Dr. Smith announced that the 8th Councilor District would hold a meeting in Springfield on June 6 and invited all Councilors to attend. The meeting will open at 2:00 p. m. with a scientific program, dinner at 7:00, and a discussion of Association affairs in the evening.

Meeting of September 21

Drs. H. E. Petersen, St. Joseph; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto Koch, St. Louis; R. W. Kennedy, Marshall; C. Edgar Virden, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; Morris B. Simpson, Kansas City; R. E. Schlueter, St. Louis; R. M. James, Jefferson City; E. C. Ernst, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. Thomas W. Parry, Mr. Lemoine Skinner, Mr. Raymond McIntyre, Mr. T. R. O'Brien, St. Louis; Drs. Thomas E. Ferrell, W. S. Sewell, Paul F. Cole, F. T. H'Doubler, Springfield, were present.

It was decided to extend an invitation to the Inter-

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national College of Surgeons to meet in St. Louis in 1948.

On-the-job training was discussed by Drs. James, Baldwin, Ernst and Thompson and it was decided that the Council should take no official action.

A letter from the American Medical Association calling attention to the resolution concerning Sections of General Practice in state associations was presented and discussed by Drs. Schlueter, Smith, Kennedy and Koch and it was decided that the Missouri State Medical Association had no line of demarcation for any specialty and that its work was principally directed for the general practitioner and that no specific section was necessary in Missouri. The following committee was appointed to draw up a suitable resolution and report at the next Council meeting: Drs. Petersen, Baldwin and Bohrer.

A letter from the St. Louis Convention Bureau was presented giving dates that were open in 1948 for the Annual Session as follow: March 14 to 17; April 11 to 14. It was decided to leave the decision to the officers and the office.

A brief report of the work done on the 1947 Annual Session was given as follows: Scientific dinner on Sunday evening; House of Delegates meet Monday morning and a recessed meeting at 4 o'clock, preceded in the afternoon by scientific work; Annual Banquet on Monday evening; scientific work all of Tuesday and on Wednesday morning and the House of Delegates have its final meeting Wednesday afternoon. It was reported that the program committee had met and had the scientific program underway.

Mr. Parry reported on activities in public relations including the Essay Contest, speeches written, program for Missouri Medical Service, letters and news stories on legislation, weekly health column to be released soon and a suggested radio broadcast in connection with the American Medical Association 1947 Session. Mr. Skinner reported on the First Councilor District meeting in St. Joseph on September 19. The report and work was discussed by Drs. Smith, Bohrer, Virden, Baldwin, Koch, Kennedy, Simpson, Thompson and Ernst. Mr. O'Brien presented a folder issued by the Associated Industries on "Know Your Association" and it was discussed as to its feasability for the Association. Dr. Petersen suggested that a page in The Journal might be so used.

The Treasurer's report stating that the Association was in good financial condition was presented by Mr. O'Brien for Dr. Hyndman.

Mr. McIntyre reported on outstate activities stating that since the time of the Annual Session twelve scientific programs had been arranged for societies, twenty-five meetings had been attended with the Field Secretary appearing on the program of thirteen, six sections of the state visited in attempt to hyphenate small societies into larger ones or help societies to become active; starting of a speakers bureau by the Postgraduate Committee with contact with the McAlester Foundation and the Woman's Auxiliary for assistance in arranging lay meetings. He reported that Washington University had received a grant from the Rockefeller Foundation to furnish postgraduate instruction to returning medical officers and furnish clinical instruction in rural areas of the state and that the Association was cooperating in arranging these sessions.

Dr. Bohrer asked the approval of the Council for the hyphenation of the Phelps-Crawford and Dent and Pulaski county medical societies. Approval was given.

Dr. Francka asked approval of the Council for the hyphenation of the Randolph-Monroe and Macon and Chariton county medical societies. Approval was given.

Dr. James discussed the Tuberculosis Advisory Committee and also the misuse being made of the health card which is issued by the Division of Health. Upon motion approval was given Dr. James for discontinuance of the health cards.

Dr. Smith reported on the activities of the National Physicians Committee and reviewed the meeting in St. Louis early in 1946, the work done in Washington and told of a recent meeting in St. Louis. This was discussed by Drs. Ernst and Virden.

Meeting of September 22

Drs. Petersen, Francka, Thompson, Koch, Kennedy, Virden, Smith, Bohrer, Baldwin, Simpson, Schlueter, W. A. Bloom, Paul F. Cole, F. T. H'Doubler, Mr. Bartleson, Mr. Parry, Mr. Skinner, Mr. McIntyre, Mr. O'Brien, were present.

Dr. Schlueter gave a comprehensive report on the activities at the American Medical Association House of Delegates 1946 session.

Mr. O'Brien reviewed briefly the legislation in the past session which was of interest to medicine. He reported the recent passing of House Bill 459 which enables Missouri to participate in revenue under the Hill-Burton bill.

Dr. Thompson reported briefly on the present status of Missouri Medical Service saying that there are 69,270 individuals covered in 768 groups.

Mr. O'Brien reported for Dr. Lohr that several conferences had been held with the Veterans Administration and that calling of the committee together had been postponed until the Veterans Administration had forms they wished to use. He stated that there was a backlog of 10,000 men to be examined. Mr. O'Brien said that Dr. Lohr might ask the Council to convene to pass upon the report of the committee which will be completed soon.

A rising vote of thanks was given Dr. C. Souter Smith and Dr. Wallis Smith for their hospitality during the Council meeting in Springfield.

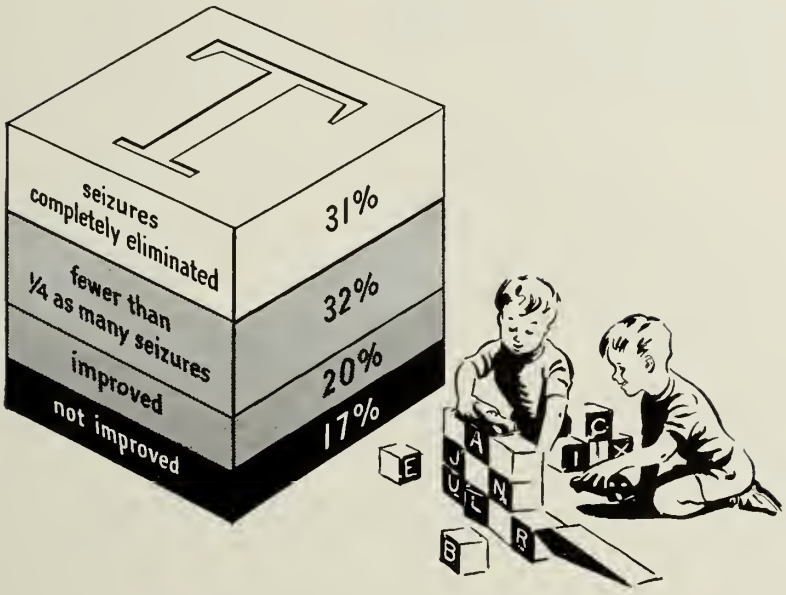
Meetings of November 30 and December 1

The Council of the Missouri State Medical Association met at the Coronado Hotel, St. Louis, on November 30 and December 1, 1946, with J. W. Thompson, M.D., St. Louis, Chairman, presiding. Those present were: W. F. Francka, M.D., Hannibal; J. W. Thompson, M.D., St. Louis; Otto W. Koch, M.D., Clayton; J. F. Jolley, M.D., Mexico; R. W. Kennedy, M.D., Marshall; Wallis Smith, M.D., Springfield; E. C. Bohrer, M.D., West Plains; Paul Baldwin, M.D., Kennett; Howard B. Goodrich, M.D., Hannibal; Morris B. Simpson, M.D., Kansas City; R. L. Thompson, M.D., St. Louis; C. E. Hyndman, M.D., St. Louis; W. L. Allee, M.D., Eldon; A. R. McComas, M.D., Sturgeon; R. E. Schlueter, M.D., St. Louis; Robert Mueller, M.D., St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. Thomas W. Parry, Mr. Lemoine Skinner, Mr. Raymond McIntyre, Mr. T. R. O'Brien, St. Louis.

Mr. O'Brien said that several insurance companies had asked that the Council approve their casualty insurance company. After discussion by Drs. Hyndman, Goodrich, Baldwin and Mr. Bartleson, in which it was pointed out that the policy studied by the Council previously was done so only on a group policy basis, it was moved and passed that the Executive Secretary be instructed to reply that the Council feels it cannot act on each individual insurance policy and that it be pointed out that the Association takes no part in promoting any insurance.

A letter from the Nurses National Memorial was presented asking that support from individual physicians be given to a memorial for nurses who gave their lives in the war. Upon motion of Dr. Baldwin, the Council approved the efforts of the committee and asked that Dr. Goodrich take the lead in this work among Missouri physicians.

A letter from the Missouri State Nurses' Association asking the Association to join with them in formulating a definite plan for training of licensed hospital nursing aids was discussed by Drs. Goodrich, Hyndman, Francka and Smith. Upon motion of Dr. Goodrich, the



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Council approved in principle but deferred any action until further information is available.

The following resolution presented by Dr. Baldwin for the committee appointed to draw up such a resolution was passed after discussion by Drs. Thompson, Hyndman, Francka and Mr. Bartleson:

Whereas, The Council received a letter from the A. M. A. advising that the House of Delegates at the San Francisco meeting had established a section on the General Practice of Medicine and urged that each component state association establish a like section,

Whereas, The committee appointed for the purpose of giving consideration to this subject is in cordial agreement with the action of the A. M. A. in giving deserved recognition to the general practitioner, and

Whereas, We sanction the advice that all component associations of the A. M. A. establish a Section on General Practice of Medicine to the extent that it is logically consistent and good, and

Whereas, We, however, call attention to the fact that the Annual Sessions of the Missouri State Medical Association are planned to conform to the requirements of the general practitioner; and since the Missouri State Medical Association has not established sections for any of the medical specialties it therefore seems wise to postpone the establishment of a Section on the General Practice of Medicine until such time as it will conform with the general concept of our state organization, therefore be it

Resolved, That it is the consensus of the Council that we do not establish a Section on the General Practice of Medicine at this time.

The following committee on Auditing and Appropriations was appointed: Drs. Bohrer, chairman, Hyndman and Baldwin.

Dr. Hyndman read the report of the finances of the Association and suggested that a U. S. Government bond be purchased. Upon motion of Dr. Koch, it was decided to buy a $5,000 bond.

Mr. McIntyre reported work with the societies in Missouri including fourteen county society meetings since the last Council meeting, the issuing of a charter to the Phelps-Crawford-Dent-Pulaski County Medical Society; the Second Councilor District meeting on Nov. 21, and several meetings of societies holding joint meetings. He stated that Dunklin, Pemiscot, Perry, Lincoln, Phelps and Barton counties had voted bond issues for hospitals and that several other elections were coming up soon. He reported that several physicians had been directed to locations in outstate areas.

Mr. O'Brien stated that there had been an increase in membership of 151 during the year.

Dr. R. L. Thompson presented his resignation as Secretary-Editor and asked that Dr. Smith be called upon to move its acceptance since Dr. Smith had nominated him for the Secretary-Editorship. Dr. Smith expressed the appreciation of the Council and the Association to Dr. Thompson and moved that the resignation be accepted which was done.

After discussion, it was decided that a committee should study the separating of the Secretary and Editor and recommend to the Council both as to this and as to the selection of an Editor. The following committee was appointed: Drs. Simpson, R. L. Thompson, Goodrich, J. W. Thompson and Mr. O'Brien.

It was decided that the listing of members of the Association by county without specialties noted should be done as soon as possible.

Material from the State Division of Health on cancer biopsy work and material from the American Society of Clinical Pathologists concerning an allotment of money for a cancer program were presented. The report of the committee appointed by the Council to study cancer biopsy work was presented and accepted as follows: The committee recommends that the services of the Missouri State Cancer Hospital at Columbia be made available to the indigent poor of the state, only upon the certification of a doctor of medicine that this service is essential and needed. It is the opinion of this committee that the services can be rendered without any additional cost to the state. This recommendation was unanimous with the members of the committee present, namely Drs. Seelig, Neal, Martin, Allen and Hunt.

The work of the Women's Field Army was discussed and Dr. Smith said they were going to ask for a meeting with the Council to discuss their work.

Mr. Parry announced that Mr. Skinner would give the report on public relations and Mr. Skinner outlined the work that had been done since the last Council meeting and discussed the public relations program in general. After discussion by Drs. Smith, Baldwin and Mueller, the report was accepted.

The Committee on Secretary-Editor recommended that the Secretary and Editor be separated and that the committee be empowered to carry out its recommendation as to the Editor. This was done.

Upon motion of Dr. Smith, Dr. W. A. Bloom, Fayette, was elected Secretary.

Dr. Simpson reported for Dr. Rex L. Diveley, chairman of the program committee, and gave an outline of the program to date with symposia to be presented and men who had accepted places on the program including many excellent outstate as well as Missouri physicians. It was reported that commercial exhibit space was selling well and Councilors were asked to suggest to the office any scientific exhibits that might be obtained.

Carl F. Vohs, M.D., St. Louis, reported that Missouri Medical Service now has 70,000 members, 35,000 contracts; that 600 different doctors had taken care of Missouri Medical Service patients. Dr. Simpson and Mr. Bartleson discussed the medical service work in Kansas City.

Mr. O'Brien discussed legislation. He stated that the committee called for in H. B. 459 had not as yet been appointed but probably would be as soon as the Legislature convened.

The committee to study the editorship reported the recommendation of Dr. G. V. Stryker, St. Louis, and Dr. Stryker was appointed as Editor.

Upon motion of Dr. Goodrich, Dr. R. L. Thompson was made Secretary-Editor Emeritus.

The following committee was appointed to draw up resolutions of thanks and appreciation to Dr. Thompson: Drs. Goodrich, Francka and Simpson.

The following budget for 1947 was adopted upon recommendation of the committee on auditing and appropriations:

Salaries	$20,700.00
Printing of Journal	12,000.00
Defense	500.00
Postage and express	750.00
Postgraduate Course	500.00
Printing, stationery, etc.	1,000.00
Travel, Executive Secretary	900.00
Travel, Field Secretary	1,400.00
Telephone and telegraph	1,000.00
Office rent and light	1,750.00
Meetings and committee expense	9,500.00
Public Relations	9,000.00
Insurance annuity	950.00
Miscl.—General expense	1,500.00
Office furniture and fixtures	200.00
Woman's Auxiliary	500.00
Total	$62,150.00

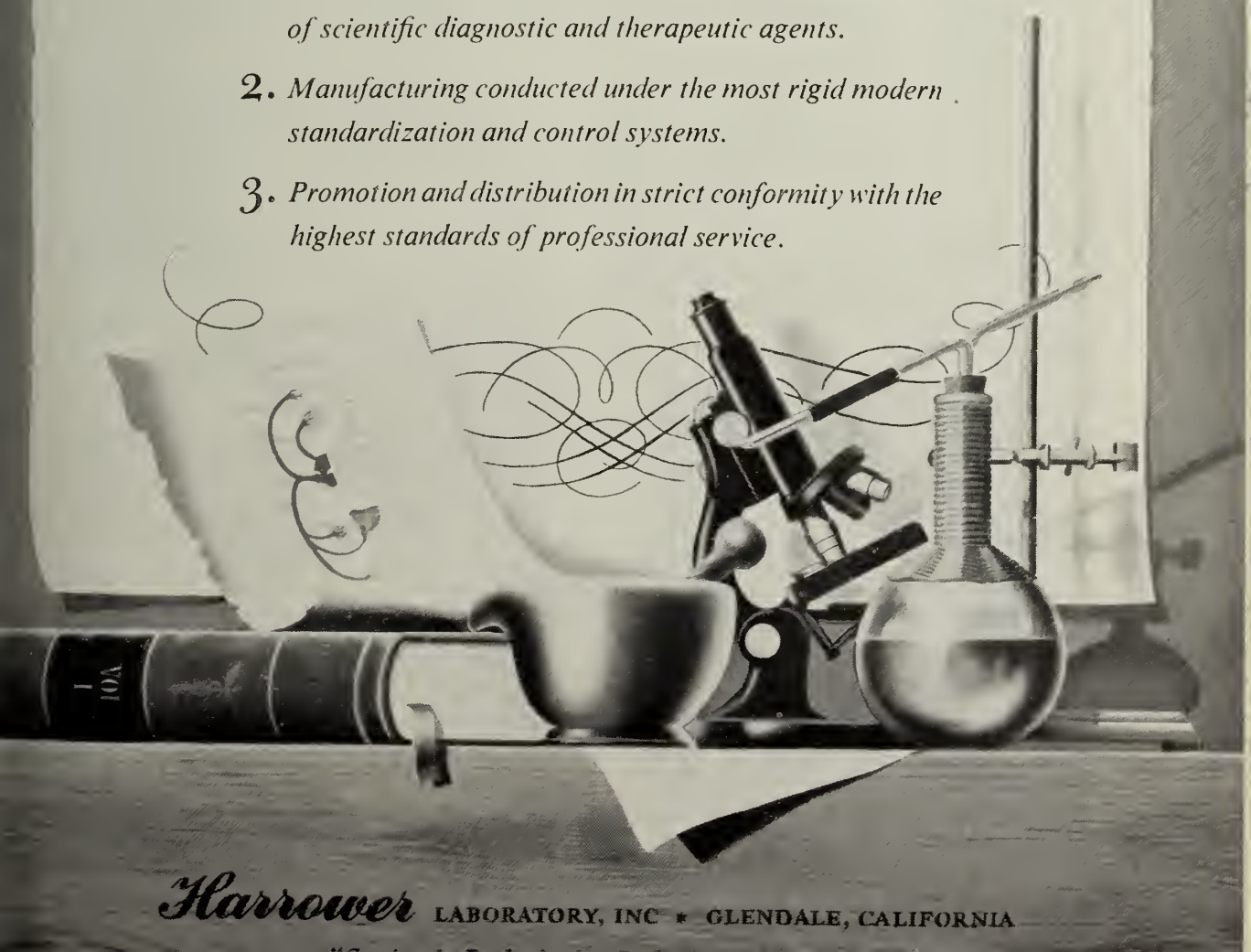
Curtis H. Lohr, M.D., St. Louis, presented the report of the Committee on Veteran Care. He stated that the committee had attempted to arrive at one fee schedule but did not have the comparative study finished and could not make a final report until such a time because of the great variation among other states which were now cooperating with the Veteran Administration and the committee felt that a complete schedule was most

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necessary. The committee felt that when the fee schedule for veteran care is presented, it should state that this is not a setting up of any fee schedule but applies only to work with the Veteran Administration because of the wish of physicians to assist veterans. This would forestall the use of the schedule by others. It was suggested that the committee continue its work and as soon as possible submit the schedule arrived at to the Councilors individually and then the committee make its final recommendations. Dr. Lohr pointed out that there were several requirements by the Veteran Administration. These are:

(1) That there be a fee schedule acceptable to the Missouri State Medical Association and the Veteran Administration.

(2) A list of members who wish to participate, and this would necessitate a letter of solicitation with explanation to the membership.

(3) Members who will participate must be classified as to specialty and the committee asked that the Council assist in this work.

(4) There must be a grievance committee.

(5) A contract or agreement with the Veteran Administration must be made by the Missouri State Medical Association.

It was pointed out that the work of the Veteran Administration at present consists principally of examinations since there is a backlog of some 10,000 cases in Missouri, and that only after this has been done will the work become treatment to any extent. It was pointed out that in examinations the veteran did not have free choice of physician because it was felt the veteran might choose a doctor of his acquaintance and that it was unjust to both the doctor and the veteran. In other respects the Veteran Administration is adhering to free choice of physician.

The committee requested the instruction of the Council as to the part the Council wished it to take in carrying out the program.

After discussion by all present and upon motion by Dr. Bohrer, it was agreed that the committee be requested to complete its work on the fee schedule and submit it to Councilors individually; that the committee then make a final recommendation, if necessary calling a Council meeting to encompass the suggestions made; that approval of the Veteran Administration be obtained by the committee; that the letter of solicitation be prepared by the committee and sent to the membership over the names of the President and Secretary but including the names of the committee; that classification be carried out as far as possible by the committee, with the necessary assistance of the Council; that the agreement with the Veteran Administration be worked out by the committee to be signed by the officers of the Association; that if response to the letter is not adequate, that Councilor District meetings be arranged for the presentation of the matter.

Dr. G. V. Stryker, St. Louis, the newly appointed Editor, was introduced.

J. W. Thompson, Chairman.

J. W. Thompson, M.D., St. Louis: The Council has had two meetings since the printing of the reports. One was on March 1 and 2 and one was March 30.

At the meeting on March 1 and 2 several actions were taken which should be reported to the House of Delegates.

A committee was appointed to study medical education in the State of Missouri, with special reference to a four year medical course. The committee consists of Drs. Virden, Jolley, Baldwin, Francka, J. W. Stewart, John Knight and J. W. Thompson.

The hyphenation of the Chariton-Macon-Monroe-Randolph County Medical Society was approved; also the hyphenation of Barton and Dade counties was approved.

The public relations consultant reported on activities in public relations since the previous council meeting and stated that beginning on April 30 his fee would be $10,000.

A committee to request the governing boards of the four hospital and prepayment plans in the state to correlate the plans, premiums and benefits and divide the territory geographically for the most economical administration and greatest benefit to the people of the state was appointed as follows: Drs. Goodrich, Virden, Lockwood, Vohs and Thompson.

Meeting of March 30

Dr. Thompson made the following report:

The program recommended by the Council at the Annual Session last year in St. Louis and which was approved by the House of Delegates has proven very beneficial to your Association.

The Bureau of Information which has been functioning under the direction of the Committee on Rural Medical Service and supervised by the Field Secretary has been most helpful in furnishing information to physicians regarding locations in rural Missouri as well as to communities which have been desirous of securing the services of physicians.

A direct result of this effort, as shown in the report sent to all members, is the increase in the number of physicians now practicing in rural Missouri as compared to one year ago.

County societies have been more active. Medical meetings have been held regularly in many areas of the state and the Field Secretary in collaboration with the Committee on Postgraduate Course has furnished a large number of speakers for these meetings.

The prepayment medical care plans in the state have not increased enrollment as rapidly as expected though considerable progress was made. It is hoped that these plans will in the near future arrange exact contracts, rates and benefits.

Recommendations

a. Continue Bureau of Information.

b. Continue methods of strengthening county societies by hyphenation arrangements or joint meetings of several county societies.

c. Expand the number of subscribers as rapidly as possible in the prepayment medical care plans in Missouri.

d. In order properly to carry out the objectives of the Association, namely, the provision of good medical care for all the people of Missouri, it is essential that the present assessment of $7.00 per member in addition to dues be continued.

Upon motion, duly seconded, the recommendations of the Chairman were approved.

After discussion it was voted to readopt the resolution concerning junior membership which was adopted at the March 1 and 2 meeting as follows:

Whereas, Many doctors of medicine have served as medical officers in World War II following completing a rotating internship and residencies and after separation have resumed their educational program through residencies and fellowships, therefore be it

Resolved, That Section I, Chapter VIII, of the By-Laws be and are hereby amended by deleting the following words in the first sentence "provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association" and inserting in place thereof the following: "Provided that the annual dues of any member who is serving a full time internship or who is serving a full time residency shall be one half of the regular dues of the Association and such member shall not be subject to any special assessments. They shall not be eligible to vote, hold office and shall have no right or interest in the assets or properties of the Association" so that when amended said Section 1 shall read: Section 1. The annual dues shall be $8.00 and shall be levied per capita on the members of the component societies of the Association, provided that the annual dues of any member who is serving a full time internship or who is serving a full time residency shall be one half of the regular dues of the Association and such member shall not be subject to any special assessments. They shall not be eligible

to vote, hold office and shall have no right or interest in the assets or properties of the Association. Dues shall be payable on or before January 1 of the year for which they are levied. . . ."

The audit for the year 1946 was presented by the Treasurer and approved for submission to the House of Delegates.

Public relations and the raising of the fee from $5,000 to $10,000 was discussed by all present after the Council went into executive session. It was decided that definite action should await the next meeting of the Council.

Upon motion the work of the National Physicians Committee was approved.

Upon motion, the following resolution was adopted:

WHEREAS, The United States Treasury Department is continuing its policy of encouraging the habits of thrift, and is fostering the establishment of future financial security for all American citizens through the purchase of U. S. Savings Bonds, in addition to combatting inflationary tendencies by keeping the ownership of the public debt spread among as many individuals as possible and holding in reserve an immense backlog of spending power while goods are scarce, and

WHEREAS, It is a fact recognized by everyone engaged in the medical profession that their future security depends upon financial reserves, and that U. S. Savings Bonds constitute their safest investment, being supported by the full credit of the Government, and providing a guaranteed return on that investment, now, therefore be it

Resolved, by the officers and Delegates of the Missouri State Medical Association, assembled in convention in Kansas City, Missouri, March 31 to April 2, 1947, that the policy of the U. S. Treasury Department be heartily endorsed and that the continued support of membership of this Association be pledged in behalf of this vitally important national effort to insure a sound economy for all Americans: and further, that every member be urged to purchase U. S. Savings Bonds from current earnings and assist local Savings Bonds organizations in conducting a successful program, and be it further

Resolved, That a copy of this resolution be forwarded to the following: Hon. John W. Snyder, Secretary of the Treasury, Washington, D. C.; Vernon L. Clark, National Director, U. S. Savings Bonds Division, Washington, D. C., and Robert E. Lee Hill, State Chairman, U. S. Savings Bonds Division, Columbia, Missouri.

Upon motion, the following resolution was adopted:

Resolved, That the Council of the Missouri State Medical Association herewith goes on record as urging that the state legislature in considering the needs of the state hospitals give favorable consideration to meeting the need for additional modern tuberculosis beds in view of the fact that there is an estimated shortage of 1,500 such beds in the State of Missouri; be it also

Resolved, That the matter of geographical location, consultant facilities and the modern concepts of tuberculosis hospital construction be given due consideration; be it further

Resolved, That a copy of this resolution be sent to the Speaker of the House of Representatives of Missouri, Mr. Thompson, and to the Chairman of the Special Committee on Eleemosynary Institutions, Mr. Mankey.

Upon motion, the following resolution was adopted:

Resolved, That the Council of the Missouri State Medical Association authorize any County Medical Society to recommend that a competent nurse, trained in tuberculosis work, recommended by the Missouri Tuberculosis Association and under the supervision of its physicians or members of the Tuberculosis Committee of the Missouri State Medical Association, make and read tuberculin tests for survey purposes.

The report of the Council was accepted with resolutions referred to appropriate reference committees.

Lt. Steele of the Fifth Army Headquarters, Chicago, and five Sergeants from service in Korea were presented and Lt. Steele told of the situation in Korea and the need of greater strength of the Army in that country.

George F. Lull, M.D., Chicago, Secretary of the American Medical Association, was introduced and spoke briefly concerning the work of the American Medical Association and national legislation.

Appointment of Committee on Nominations

The President announced the appointment of the Committee on Nominations as follows:

Carl F. Vohs, St. Louis, Chairman.
A. S. Bristow, Princeton.
P. W. Jennings, Canton.
Arthur Westrup, St. Louis.
J. L. Washburn, Versailles.



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A. J. Campbell, Sedalia.
H. L. Mantz, Kansas City.
R. M. James, Joplin.
M. K. Underwood, Rolla.
S. E. Mitchell, Malden.

E. Lee Dorsett, M.D., St. Louis: May I present the following resolution:

Resolved, (1) That the scientific program of the Missouri State Medical Association be divided into three separate and distinct sections: 1. The Section on Medicine, 2. The Section on Surgery, 3. The Section on Obstetrics and Gynecology. More sections are to be added if thought consistent with the best interests of the Association.

(2) Each section shall conduct its own business but conforming at all times to the rules, regulations, constitution and by-laws of the Missouri State Medical Association.

(3) Each section shall elect its own officers, a chairman, a vice chairman and a secretary.

(4) Each section will make up its own program and invite its own guest speaker but these programs will in no way interfere with the business or scientific program of the general society. The programs of each section shall be arranged by the secretary of each section in consultation with the Committee on Scientific Work and the Secretary of the Association.

The resolution was referred to the Reference Committee on Resolutions.

H. L. Mantz, M.D., Kansas City: I wish to present the following resolution for the Jackson County delegates:

Whereas, The Congress of the United States enacted in 1946 Public Law No. 293, which provided for the medical care of veterans and authorized the employment of professional personnel by the Director of the Veterans Administration, and

Whereas, The provisions of Public Law No. 293 gives permission to the Director of the Veterans Administration to employ personnel whose qualifications for administering medical care are limited because of educational attainments, and

Whereas, The medical personnel, accepted for commission in the Medical Corps of the United States Army and the United States Navy, was limited to those who were qualified as Doctors of Medicine, therefore be it

Resolved, By the House of Delegates of the Missouri State Medical Association, assembled in the 89th Annual Session, that it disapproves of the employment of any person who claims to be educated in the healing arts for the medical care of veterans eligible to the benefits as provided by the Acts of Congress for the medical care of veterans, when said person was not acceptable to the Medical Corps of the United States Army and the United States Navy for commission as a medical officer, be it further

Resolved, That the Sections of Public Law No. 293, giving such permission, should be repealed, and be it further

Resolved, That this resolution be presented by the Delegates from the Missouri State Medical Association to the House of Delegates of the American Medical Association at the next annual session of the House of Delegates of the American Medical Association.

This resolution was referred to the Reference Committee on Resolutions.

The House of Delegates recessed until 4:00 p. m.

MONDAY, MARCH 31, 1947—Afternoon SESSION

The adjourned session of the House of Delegates convened at 4:00 p. m., Monday, March 31, with Ralph E. Duncan, M.D., Kansas City, Speaker of the House, presiding.

The report of the meeting of the Council at 12:15 p. m. on March 31, J. W. Thompson, M.D., Chairman, follows:

REPORT OF THE COUNCIL

George F. Lull, M.D., Chicago, Secretary of the American Medical Association, spoke briefly concerning the activities of the Association.

The following resolution was adopted:

Resolved, That the agreement with our present public relations counsel be discontinued with expression of regret at the necessity and with thanks to Mr. Thomas Parry and his associates for their excellent services to the Missouri State Medical Association, said agreement to be terminated April 30, 1947; be it further

Resolved, That it is the sense of the Council that the public relations work be continued by the personnel in the state office with provision for adjustment of salaries, employment of additional personnel, and public relations counsel that may be found necessary after trial and study of the needs of such a program.

The report was referred to the Reference Committee on Resolutions.

Carl F. Vohs, M.D., St. Louis, invited the Association to meet in St. Louis in 1948. The invitation was accepted unanimously.

Upon motion, duly seconded, the House of Delegates adjourned.

WEDNESDAY, APRIL 2, 1947—AFTERNOON SESSION

The House of Delegates convened at 2:30 p. m., April 2, with the Speaker, Ralph E. Duncan, M.D., Kansas City, presiding.

The Committee on Credentials reported a quorum present.

The minutes of the previous meetings, on motion, duly seconded, were approved.

NOMINATION FOR PRESIDENT-ELECT

Robert E. Schlueter, M.D., St. Louis, nominated Robert Mueller, M.D., St. Louis, for President-Elect.

On motion, duly seconded and carried, the Secretary was instructed to cast the unanimous ballot of the House of Delegates for Dr. Robert Mueller, St. Louis, for President-Elect. The Secretary cast the unanimous ballot of the House for Dr. Mueller as President-Elect of the Missouri State Medical Association for the ensuing year and the Speaker declared Dr. Mueller so elected.

Dr. Mueller was escorted to the platform by Drs. B. Landis Elliott, Kansas City, and R. E. Schlueter, St. Louis.

Robert Mueller, M.D., St. Louis: I feel very keenly and deeply this honor that you have conferred upon me, and I think that any member of the Association would feel the same. With the honor comes the definite obligation to serve the profession in my best capacity. I like to look upon this period in medicine, particularly as regards the social aspect of medicine, as a strange interlude. We must never forget that the proponents of the Wagner-Murray-Dingell bill and the ideas are still with us and, although at the present time there is an interlude in their activities, when the proper time comes they shall again become active. So it behooves all of us in the state organization, every physician, not just a few, not just the leaders, to be active and become aware of what is in front of us and what is before us.

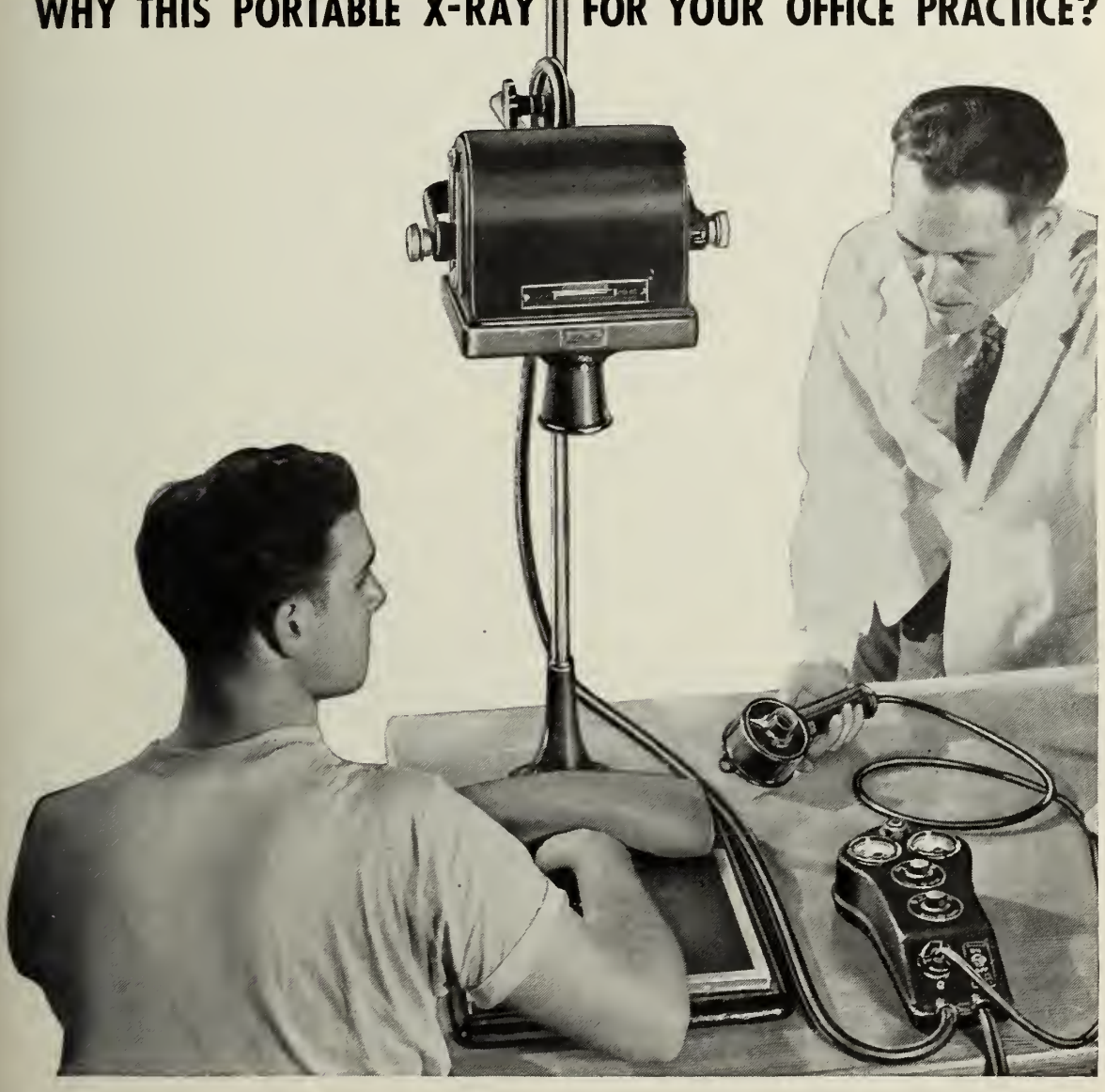
I believe that the Association should become a very active group. The work of Tom O'Brien and Ray McIntyre in the development and expansion of the Association has been outstanding.

I wish to take this opportunity to thank the entire membership of the organization for the cooperation that they have given in Procurement and Assignment work. This was not the job of one man or one group, it was the job of the entire medical profession of the State of Missouri. The greatest honor, of course, must go to those fourteen hundred phvsicians who served their country and their profession so honorably in the armed forces, but in addition to that those members who were declared essential in their different capacities also must secure some of the glory.

To the President this year, Dr. Simpson, I wish to tell him that I will cooperate in every way possible in the work that is ahead.

Thanks again for the great honor you have conferred upon me.

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REPORT OF THE COMMITTEE ON NOMINATIONS

For Vice Presidents: O. T. Blanke, M.D., Joplin; S. M. Bailey, M.D., Malden; Donald M. Dowell, M.D., Chillicothe.

For Delegates to the American Medical Association: For Delegate, R. E. Schlueter, M.D., St. Louis; alternate, F. G. Pernoud, M.D., St. Louis. Delegate, James R. McVay, M.D., Kansas City; alternate, A. J. Campbell, M.D., Sedalia.

For Speaker of the House of Delegates, Ralph E. Duncan, M.D., Kansas City; Vice Speaker, W. S. Sewell, M.D., Springfield.

On motion, duly seconded, these officers were declared elected.

The Secretary reported the results of the election of Councilors as follow:

2nd District..... W. F. Francka, M.D., Hannibal
4th District.....Otto W. Koch, M.D., Clayton
6th District.....R. W. Kennedy, M.D., Marshall
8th District.....Wallis Smith, M.D., Springfield
10th District.....Frank W. Hall, M.D., Cape Girardeau

INSTALLATION OF THE PRESIDENT

Morris B. Simpson, M.D., Kansas City, was escorted to the platform by Drs. Curtis H. Lohr, St. Louis, and H. L. Mantz, Kansas City.

Morris B. Simpson, M.D., Kansas City: We have been very, very fortunate, I think, during the last year to have such a high type man as Howard Goodrich as our President. During the twenty-five years that I have been attending these meetings, I cannot remember a year in which there has been more progress and accomplished in a smoother manner than was carried on by Howard Goodrich. He certainly has had an outstanding year and he is an outstanding individual; he is broad and fair with everybody, honest, honest with himself, honest with his work, full of energy and unselfish and has devoted hours and days of time to the Association, never thinking of sacrificing his own practice and the time with his own family. I hope that this year will be at least a part as good a year as Dr. Goodrich has been able to carry out. He made a number of recommendations the other morning in his address, all of which we will follow this year, and I know this will be very helpful.

As we go into this year, we realize of course, that most of the real problems facing the Association are carryovers from Dr. Goodrich's year. I think we should all remember that the health of the people of Missouri is our problem and our responsibility, our responsibility as individuals in taking care of our individual patients, the sick people at home in our home communities, as well as our responsibility as an Association. The public looks to us for health and advice regarding health and we should not wait until something happens to correct it.

Among these problems, I feel the greatest is Blue Cross hospitalization and medical care plans. A committee is now working on making these plans all the same so that more people can be covered.

The veterans' care plan has been worked out nicely in our state by a special committee under the chairmanship of Dr. Curtis H. Lohr. We have the sick and crippled veteran today and will for years to come. It is a great feeling to know that everything will be done for them under this new plan and we hope that it will go along without any difficulty.

As you know, under the new constitution we have a different department of health. We have a Division of Health and our same Dr. Bob James is the head of this Division. It is our duty to support him in every way possible and this should apply to county health officers as well. Under Dr. James division is the tuberculosis hospital, which, as Dr. Mantz has outlined, will need a great addition in beds following the statewide x-ray survey.

The question of cancer is being brought to us by the new detection centers that are being established over the state, and a great fight has begun in this state against this disease. We should lend every support that we can.

The Division of Mental Diseases under Dr. Orr Mullinax is also receiving a great deal of notice. One thinks of the deplorable condition that the state hospitals have dropped into, when one hospital built for the care of twelve hundred patients now is trying to take care of two thousand patients with four doctors to care for them and two registered nurses. Fortunately, the Governor and the legislature are making great efforts to correct these conditions.

Another problem is the hospital survey which is just getting under way. In this we are going to survey the state and decide on the number and locations of needed new hospitals. We should push this survey in order that these hospitals may be located.

Dr. Simpson made the following committee appointments:

Scientific Work: R. O. Muether, St. Louis, Chairman; Associates: Victor Buhler, Kansas City; W. J. Stewart, Columbia.

Postgraduate Course: Guy D. Callaway, Springfield.

Public Policy and Public Relations: Arie C. van Ravenswaay, Boonville; John Growdon, Kansas City.

Defense: Roland S. Kieffer, St. Louis; L. F. Heimburger, Springfield.

Medical Education and Hospitals: V. V. Wood, St. Louis; F. T. H'Doubler, Springfield.

Cancer: E. C. Ernst, St. Louis, Chairman.

Medical Economics: Carl F. Vohs, St. Louis, Chairman.

Mental Health: Paul Hines, St. Louis; Orr Mullinax, Jefferson City.

Maternal Welfare: E. E. Wadlow, St. Joseph.

Infant Care: H. E. Petersen, St. Joseph.

Health and Public Instruction: A. W. McAlester, III, Kansas City, Chairman; Joseph Conrad, Chillicothe.

Constitution and By-Laws: B. Landis Elliott, Kansas City; John J. Hammond, St. Louis; S. R. McCracken, Excelsior Springs.

Fractures: W. R. Bohne, St. Louis; J. Albert Key, St. Louis; Jacob Kulowski, St. Joseph.

Conservation of Eyesight: A. N. Lemoine, Kansas City; C. P. Dyer, St. Louis. Associates: Winfred L. Post, Joplin; Philip Luedde, St. Louis; John McLeod, Kansas City; G. J. Tygett, Cape Girardeau; S. L. Freeman, Kirksville; H. B. Stauffer, Jefferson City.

Control of Venereal Disease: Hugh Dwyer, Kansas City; Charles Greenberg, St. Joseph.

Industrial Health: E. M. Fessenden, St. Louis; Dailey Appleberry, River Mines; Richard A. Sutter, St. Louis.

Physical Medicine: F. H. Ewerhardt, St. Louis, Chairman; Emmett Settle, Rock Port; A. J. Kotkis, St. Louis.

Tuberculosis: E. E. Glenn, Springfield, Chairman; H. L. Mantz, Kansas City; A. C. Henske, St. Louis; Lawrence E. Wood, Kansas City; J. L. Mudd, St. Louis; Paul Murphy, St. Louis.

Study of Cardiac Diseases: Julius Jensen, St. Louis. Associates: W. J. Fleming, Jr., Moberly; Glenn W. Hendren, Liberty; C. Braxton Davis, Nevada.

On motion, duly seconded, these appointments were approved.

Dr. B. Landis Elliott, Kansas City, gave the report of the Reference Committee on Constitution and By-Laws:

REPORT OF REFERENCE COMMITTEE ON CONSTITUTION AND BY-LAWS

The Committee wishes to report as follows:

The following amendments of the By-Laws are submitted to the House of Delegates:

Amend Sec. 3, Chapter I, by adding the words "show-



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ing that dues for the current year have been paid" so that the Section will read:

Sec. 3, Chapter I—Membership

Sec. 3. Each member in attendance at the Annual Session shall register when his right to membership has been verified by reference to the records of this Association showing that dues for the current year have been paid. No member shall take part in any of the proceedings of the Annual Session until he has complied with the provisions of this section of the By-Laws.

Chapter III—House of Delegates

Amend Chapter III—House of Delegates, by striking out Sec. 6 which reads "The House of Delegates shall upon application provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws" since in Sec. 5 of Chapter VI and in Sec. 1 of Chapter XI this power is given to the Council and the Council can act oftener than once a year; and changing Sec. 7 of Chapter III to Sec. 6, Sec. 8 to Sec. 7, Sec. 9 to Sec. 8 and Sec. 10 to Sec. 9.

Amend Sec. 9, Chapter III, by changing the word "ensuing" to "current calendar" so that the Section will read:

Sec. 9, Chapter III—House of Delegates

Sec. 9. The House of Delegates shall receive and act upon a complete and detailed annual audit of receipts and expenses of the preceding year and a proposed budget for the current calendar year which shall have been prepared by the Council and submitted to the component county societies by publication in The Journal before March 31 of each year.

Amend Section 1, Chapter IV, by changing the words "President for the succeeding year" to "President-Elect" so that the Section will read:

Sec. 1, Chapter IV—Election of Officers

Section 1. The President on the first day of the Annual Session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same Councilor District. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session excepting the President-Elect who shall be nominated from the floor of the House of Delegates. On the adoption of this section the nomination of the President-Elect shall be made from the floor of the House. Each candidate for Councilor must reside or practice in the district for which he is nominated.

Amend Sec. 3, Chapter IV, by changing the word "ballot" to "acclamation unless ballot is called for" so that the Section will read:

Sec. 3, Chapter IV—Election of Officers

Sec. 3. All elections of officers shall be by acclamation unless ballot is called for and a majority of the votes cast shall be necessary to elect except for delegates and alternates to the American Medical Association. In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected. In case no delegates or alternates for the American Medical Association receive on the first ballot a majority of the votes, the nominees shall be declared elected in the order of the highest number of votes received until the allotted number shall have been chosen. In case of a tie vote for delegate or alternate, the tie shall be determined by lot.

Amend Sec. 2, Chapter VI, by inserting in the last sentence following the word "statement" and preceding the word "but" the words "submitted monthly and within the current year" and adding to the section "No Councilor shall be eligible for the position of Delegate to the House of Delegates during his term of office as Councilor" so that the Section will read:

Sec. 2, Chapter VI—Council

Sec. 2. Each councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exists, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the Council. The necessary traveling expenses incurred by each Councilor in the line of duties herein imposed may be allowed on a proper itemized statement submitted monthly and within the current year, but this shall not be construed to include his expense in attending the Annual Session of the Association. No Councilor shall be eligible for the position of Delegate to the House of Delegates during his term of office as Councilor.

Amend Sec. 7, Chapter VI, by inserting after the word "year," the words "for the following calendar year" so that when amended the Section will read:

Sec. 7, Chapter VI—Council

Sec. 7. The Council shall provide for and superintend the issuance of all publications of the Association including proceedings, transactions and memoirs, and shall have authority to appoint an Editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, for the following calendar year, and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter III. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer.

Upon motion, duly seconded, these amendments were adopted.

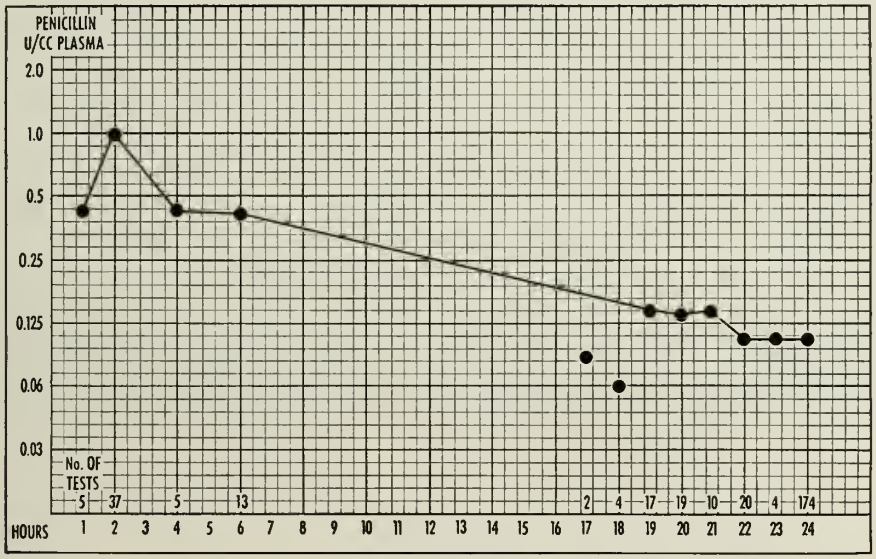
B. Landis Elliott, M.D., Kansas City: One other recommendation was made by the Council in the following resolution:

Whereas, Many doctors of medicine have served as medical officers in World War II following completing a rotating internship and residencies and after separation have resumed their educational program through residencies and fellowships, therefore be it

Resolved, That Section 1, Chapter VIII, of the By-Laws be and are hereby amended by deleting the following words in the first sentence "provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association" and inserting in place thereof the following: "provided that the annual dues of any member who is serving a full time internship or who is serving a full time residency shall be one half of the regular dues of the Association and such member shall not be subject to any special assessments. They shall not be eligible to vote, hold office and shall have no right or interest in the assets or properties of the Association" so that when amended said Section 1 shall read:

Section 1. The annual dues shall be $8.00 and shall be levied

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per capita on the members of the component societies of the Association, provided that the annual dues of any member who is serving a full time internship or who is serving a full time residency shall be one half of the regular dues of the Association and such member shall not be subject to any special assessments. They shall not be eligible to vote, hold office and shall have no right or interest in the assets or properties of the Association. Dues shall be payable on or before January 1 of the year for which they are levied. . . ."

I move the adoption of this by-law.

The motion was seconded.

H. L. Kerr, M.D., Crane: I wish to remind you that some of the boys that go out in the small country towns and fight it out have a pretty hard time getting by for the first five years and it would be nice to make it a little easier for them.

H. L. Mantz, M.D., Kansas City: I wish to offer the following amendment: That the former provision for junior membership be left in and the further provision added so that that portion of the section will read "The annual dues shall be $8.00 and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association, and providing further that the annual dues of any member who is serving full time internship or residency in a hospital shall be one half of the regular dues, and such members shall not be subject to any special assessments. . . ."

Upon motion, duly seconded, the amendment was adopted.

Upon motion, duly seconded, the amendment to the by-laws as amended was adopted.

W. S. Sewell, M.D., Springfield, presented the report if the Reference Committee on Resolutions.

REPORT OF REFERENCE COMMITTEE ON RESOLUTIONS

The following resolutions were referred to this Committee from the report of the Council: on public relations, United States Savings Bonds, need of more tuberculosis hospital beds, tuberculin testing. These and the resolution presented to the House of Delegates on Public Law No. 293, we move be adopted.

Upon motion, duly seconded, these were adopted.

W. S. Sewell, M.D., Springfield: Due to the fact that the resolution presented by Dr. Dorsett suggests a very marked change in the program that has been followed for the last several years, we feel it should be thoroughly studied and worked out in detail. We therefore move that this be referred to the Council.

Upon second, this was referred to the Council.

Richard A. Sutter, M.D., St. Louis, read the report of the Reference Committee on Miscellaneous Affairs as follows:

REPORT OF THE REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

The Reference Committee on Miscellaneous Affairs at this session considered the reports of the following standing committees: 1. Cancer, 2. Mental Health, 3. Tuberculosis.

Following such consideration and deliberations this committee begs to recommend the following action on these individual reports.

1. Report of the Committee on Cancer, presented by E. C. Ernst, M.D., St. Louis, Chairman. This committee recommends the acceptance and approval of the report and the recommendations contained therein.

2. Report of the Committee on Mental Health, presented by Emmett F. Hoctor, M.D., Farmington, Chairman. This committee recommends acceptance and approval of the report and the recommendations contained therein. This committee further suggests that the Missouri State Medical Association express its appreciation of the efforts exerted by the Governor of the State and the Legislature toward improving conditions in the Mental Hospitals of the State, in form of resolutions, copies of which be sent to the Governor of the State, the Speaker of the House and the President of the Senate.

3. Report of the Committee on Tuberculosis, presented by E. E. Glenn, M.D., Springfield, Chairman. This committee recommends the acceptance and approval of the report and recommendations contained therein as read by Dr. Glenn at the March 31, 1947, meeting of the House of Delegates.

I move that the House of Delegates accept this report of the Committee on Miscellaneous Affairs.

On second, the report was adopted.

A. R. McComas, M.D., Sturgeon, read the report of the Reference Committee on Medical Education and Public Welfare as follows:

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND PUBLIC WELFARE

We had referred to us the President's report to the House of Delegates. The report contains many recommendations, most noticeable of which are: 1. The veterans' program involving both examination and treatment of veterans' disabilities. This we strongly endorse. 2. We would urge all medical men to encourage suitable young women to become nurses. 3. There appears to be discrepancies in premiums and benefits covering the two medical care plans in Missouri. We would recommend that accredited representatives of these organizations meet and adjust these differences as early as possible. 4. We feel that the bureau of information regarding suitable locations in rural Missouri is functioning well. 5. Your committee on its own initiative feels that medical officers in the Army and Navy who desire to practice in Missouri should be allowed to do so on a temporary basis until the regular examination of the Board of Licensure is held. I move the adoption of this report.

Upon second, the report was adopted.

Curtis H. Lohr, M.D., St. Louis: I believe I am expressing the sentiment of the House of Delegates when I call attention to the fine manner in which the officers of this Association and our friends of Jackson County Medical Society have as usual conducted this annual meeting. We have had good exhibits, the business has been done efficiently and you have been perfect hosts. I move that the House of Delegates expresses its sincere appreciation to the officers and to the Jackson County Medical Society for the conduct of this year's meeting.

Upon second, this motion was adopted.

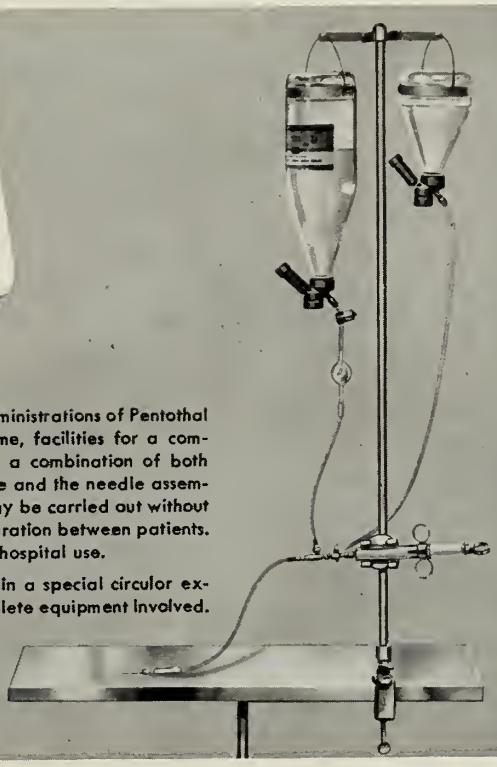
REPORT OF THE COMMITTEE ON SCIENTIFIC AWARDS

Thomas E. Ferrell, M.D., Springfield: A committee appointed by the President consisted of Dr. Emmett Settle, Dr. Dudley Robnett and myself. The exhibits were judged from the following standpoints: 1. Application to general medicine. 2. The originality of the exhibit. 3. The manner in which the exhibits were presented to the profession by the person or persons in attendance.

The first place goes to the exhibits of the Missouri Bureau for the Blind and the Missouri School for the Blind, both exhibits sponsored by the Committee on Conservation of Eyesight.

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First honorable mention goes to the exhibit on "Rare Dermatoses and Mycotic Parasites of the Skin" by Drs. Richard L. Sutton, Jr., Bernard H. Winston, and Jeannette Carter, Kansas City.

Second honorable mention goes to the exhibit on "Polystotic Fibrous Dysplasia of Bone" by Drs. Robert O'Brien, William Bauer and LeRoy Sante, St. Louis.

Upon motion, duly seconded, the House of Delegates adjourned *sine die*.

MEETING OF THE COUNCIL

The Council convened on April 2 following the final meeting of the House of Delegates with J. W. Thompson, M.D., St. Louis, Chairman, presiding.

The following officers were elected: Treasurer: C. E. Hyndman, M.D., St. Louis; Secretary, W. A. Bloom, M.D., Fayette; Chairman of the Council, J. W. Thompson, M.D., St. Louis; Vice Chairman of the Council, Wallis Smith, M.D., Springfield.

Dr. Curtis H. Lohr reported that further contact had been carried on with the Veteran Administration and that the Administration had submitted a schedule of fees which was more comprehensive than the one made out by the committee and recommended that the Administration schedule be adopted.

Upon motion, the Council voted to adopt this schedule and instructed the President, Chairman of the Council and the Chairman of the Committee on Veteran Care to proceed with the arrangements.

Mr. Thomas W. Parry, St. Louis, spoke briefly of his enjoyment of the work with the Association and his appreciation of the friendships he had made in the work.

MISSOURI STATE MEDICAL ASSOCIATION REGISTRATION AT EIGHTY-NINTH ANNUAL SESSION

First Councilor District—65

Atwood, J. Morris, Carrollton
Bales, Eugene L., Carrollton
Bloomer, G. T., St. Joseph
Booth, Herbert R., Hamilton
Bristow, Arthur S., Princeton
Broyles, W. A., Bethany
Buck, Ronald M., St. Joseph
Byrne, J. I., St. Joseph
Calvert, L. C., Weston
Chandler, John F., Oregon
Chiarottino, J. F., St. Joseph
Cockrell, John L., Richmond
Coffey, W. H., Parkville
Collier, Alfred, Chillicothe
Conrad, H. S., St. Joseph
Cullers, C. H., Trenton
Dawson, Lerton V., Excelsior Springs
Dowell, G. S., Braymer
Durham, Silas L., Dearborn
Elam, William T., St. Joseph
Ferrell, Thomas E., Jr., Springfield
Forgrave, Paul, St. Joseph
Forman, George W., St. Joseph
Gale, Joseph F., Chillicothe
Goodson, W. M., Liberty
Grant, C. S., St. Joseph
Grimes, M. E., St. Joseph
Hendren, Glenn, Liberty
Houck, R. M., Excelsior Springs
Hughes, Judson M., St. Joseph
Humberd, Charles D., Barnard
Johnson, Glenn D., Maysville
Kaplan, Ruben, Excelsior Springs
Knepper, R. A., St. Joseph
Lau, G., St. Joseph
McDonald, Wilbur P., St. Joseph
McGlothlan, Arthur B., St. Joseph
Mairs, E. J., Trenton
Matteson, Frank B., Grant City
Meluney, S. E., St. Joseph
Moore, Walter R., St. Joseph
Muench, Albert H., St. Joseph
Mullinax, Orr, St. Joseph
Mundy, H. F., St. Joseph
Neudorff, Louis G., St. Joseph
Nixon, Edward, Gallatin
Parker, H. G., Platte City
Parker, John Z., Pattonsburg
Paul, T. M., St. Joseph
Petersen, H. E., St. Joseph
Platz, John H., Carrollton
Reed, Carl H., Carrollton
Robichaux, E. B., Excelsior Springs
Rost, William, St. Joseph
Settle, Emmett B., Rock Port
Sibley, Lois Mooney, Hardin
Spalding, Wilbur B., Plattsburg
Spencer, Floyd H., St. Joseph
Thompson, F. G., Jr., St. Joseph
Timerman, A. R., St. Joseph
Toothaker, Wayne, St. Joseph
Vandiver, Virgil D., Chillicothe
Wadlow, Ernest S., St. Joseph
Werner, Charles E., St. Joseph
Wortley, Cabray, St. Joseph

Second Councilor District—18

Bohnsack, R. W., Brookfield
Bridges, James R., Kahoka
Dixon, John R., Brookfield
Eggleston, Donald E., Macon
Erni, H. E., Macon
Fleming, J. Will, Jr., Moberly
Francka, W. F., Hannibal
Goodrich, Howard B., Hannibal
Greene, H. L., Hannibal
Haley, Roy, Brookfield
Hornback, G. A., Hannibal
Hurst, Ben B., Marceline
Jennings, P. W., Canton
Landau, D. B., Hannibal
Lewellen, Charles P., Louisiana
Montgomery, J. S., Milan
Murphy, B. L., Hannibal
Reichman, J. J., Hannibal

Third Councilor District—65

Abel, Oliver, Jr., St. Louis
Bublis, Norbert J., St. Louis
Buddy, E. P., St. Louis
Burford, Cyrus E., St. Louis
Casey, E. J., St. Louis
Coughlin, Bertrand D., St. Louis
Dorsett, E. Lee, St. Louis
Drake, Truman G., St. Louis
Echterhoff, Harry R., St. Louis
Edwards, Joseph C., St. Louis
Engman, Martin J., Jr., St. Louis
Ernst, Edwin C., St. Louis
Fineberg, Maxwell, St. Louis
Fletcher, Paul F., St. Louis
Fries, Armand D., St. Louis
Gay, Lee Pettit, St. Louis
Glaze, Kenneth F., St. Louis
Hammond, John J., St. Louis
Hartnett, Leo J., St. Louis
Hassett, H. A., St. Louis
Hines, Paul, St. Louis
Hyndman, C. E., St. Louis
Jones, A. B., St. Louis
Jones, Otey S., St. Louis
Jones, Vincent L., St. Louis
Klenk, Charles L., St. Louis
Koon, Bernard T., St. Louis
Kountz, William Bryan, St. Louis
Lohr, Curtis H., St. Louis
Luten, Drew, St. Louis
McCarroll, Henry R., St. Louis
Mattis, Robert D., St. Louis
Meyerhardt, Milton H., St. Louis
Mudd, James L., St. Louis
Mueller, Robert, St. Louis
Muether, R. O., St. Louis
Murphy, John Patrick, Jr., St. Louis
Neilson, A. W., St. Louis
Neilson, C. H., St. Louis
Norton, William Hudson, St. Louis
O'Brien, Robert M., St. Louis
Pernoud, F. G., St. Louis
Pernoud, Michael F., St. Louis
Pollock, Ellis L., St. Louis
Pruett, Burchard S., St. Louis
Ramos, Raoul L., St. Louis
Romendick, Samuel S., St. Louis
Saslow, George, St. Louis
Scherman, Victor E., St. Louis
Schlueter, Robert E., St. Louis
Schnoebelen, P. C., St. Louis
Shaner, John F., St. Louis
Simon, Jerome I., St. Louis
Strauss, Arthur E., St. Louis
Stryker, G. V., St. Louis
Talbott, Hudson, St. Louis
Thompson, J. W., St. Louis
Thym, Henry P., St. Louis
Vitt, Alvin E., St. Louis
Vohs, Carl F., St. Louis
Walton, F. E., St. Louis
Webb, Lewis M., St. Louis
Woolsey, Robert D., St. Louis
Zeinert, Oliver B., St. Louis

Fourth Councilor District—18

Brown, Eugene R., University City
Creech, J. C., Troy
Denny, R. B., Creve Coeur
Dyer, Clyde P., Webster Groves
Eyermann, H. W., Warrenton
Hampton, Oscar P., Jr., St. Louis
Hopson, George, DeSoto
Jensen, Julius, St. Louis
Kendis, Joseph B., St. Louis
Koch, Otto W., Clayton
Leslie, C. H., St. Louis
O'Connell, John, St. Louis
Schneider, Vincent A., St. Charles
Steiner, Alex J., St. Louis
Sterling, J. A., St. Louis
Sutter, Richard A., St. Louis
Walther, Roy A., Overland
Westrup, Arthur, Webster Groves

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Adams, C. F., Jefferson City
Aldridge, M. R., Jefferson City
Alford, R. Lee, Vandalia
Allee, W. L., Eldon
Baskett, Edgar D., Columbia
Bloom, W. A., Fayette
Bohrer, E. R., Jefferson City
Burke, J. P., Sr., California
Conley, Dudley S., Columbia
Cooper, Edmund J., Columbia
Cooper, Maurice E., Columbia
Cremer, W. J., Fulton
Dean, Francis, Fayette
Dwyer, Thomas L., Mexico
Garner, L. M., Jefferson City
Gillham, F. W., Jefferson City
Gish, E. R., Fulton
Griffin, Fred, Mexico
Guyot, J. Devoine, Jefferson City
Harrison, John F., Mexico
Jolley, J. F., Mexico
Kibbe, E. A., California
Latham, L. L., California
LeMone, David V., Columbia
McComas, A. R., Sturgeon
McHaney, J. W., Jefferson City
Neal, M. Pinson, Columbia
Nifong, Frank G., Columbia
Overholser, M. D., Columbia
Robnett, Dudley A., Columbia
Stauffer, H. B., Jefferson City
Stephan, A. P., Jefferson City
Stewart, William J., Columbia
Stine, Dan G., Columbia
Stone, W. E., Boonville
Summers, J. S., Jefferson City
Washburn, J. L., Versailles
Winn, G. W., Boonville
Wood, George F., Fulton
Ziegler, Newell R., Columbia

Sixth Councilor District—40

Aiken, George A., Marshall
Barger, O. B., Harrisonville
Barone, Paul L., Nevada
Beckman, William, Strasburg
Brady, C. H., Sedalia
Campbell, A. J., Sedalia
Claybourn, Norman, Eldorado Springs
Cooper, John M., Butler
Cooper, R Lee, Warrensburg
Davis, C. Braxton, Nevada
Dawson, John W., Eldorado Springs
Hanks, Ralf, Nevada
Hansen, Arthur L., Appleton City
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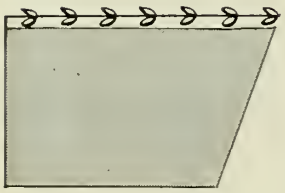


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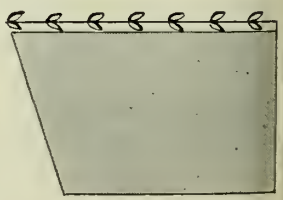
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McCorkle, E. Lee, Marshall
Maples, Floyd H., Marshall
Murray, John W., Sedalia
Potter, Reese H., St. Louis
Rhodes, E. L., Sedalia
Robbins, Martin V., Peculiar
Robinson, Don, Slater
Robinson, E. E., Adrian
Ryland, C. T., Lexington
Smith, James, Clinton
Stauffacher, C. G., Sedalia
Tracy, Herbert A., Belton
Walker, G. S., Clinton
Wall, Harvey M., Windsor
Walter, Archie L., Sedalia
Ward, Joseph, Lexington
Wray, R. B., Nevada

Seventh Councilor District—254

Aisenstadt, E. A., Kansas City
Allebach, Hobart, Kansas City
Altringer, A. N., Kansas City
Arms, Arnold V., Kansas City
Aschman, Theodore H., Kansas City
Asher, Arthur Graham, Kansas City
Atcheson, Bellfield, Kansas City
Aull, John, Kansas City
Baer, Alvin J., Kansas City
Beal, Homer A., Kansas City
Becker, Richard R., Kansas City
Beil, J. Wallace, Kansas City
Bell, J. Vardeman, Kansas City
Bergmann, Victor H., Kansas City
Bills, Marvin L., Kansas City
Black, William B., Kansas City
Bohan, P. T., Kansas City
Borenstine, Joseph, Kansas City
Boutros, Amin, Kansas City
Brams, Jack B., Kansas City
Brown, Adrian J., Kansas City
Brown, Irwin S., Kansas City
Brumm, Lawrence W., Kansas City
Brust, Carl H., Kansas City
Budke, Harold A., Kansas City
Buhler, Victor B., Kansas City
Bunting, Williston P., Kansas City
Cain, Arthur S., Jr., Kansas City
Caldwell, John K., Kansas City
Capell, Clarence S., Kansas City
Carlson, H. E., Kansas City
Carmichael, F. A., Jr., Kansas City
Carrier, Edson C., Kansas City
Casford, Ralph S., Kansas City
Castelaw, Rush English, Kansas City
Castles, John E., Kansas City
Chambers, James Q., Jr.,
Coburn, Donald F., Kansas City
Cochrane, J. J., Kansas City
Coffey, Ralf R., Kansas City
Coffman, D. L., Kansas City
Conover, Charles C., Kansas City
Counsell, Chester M., Kansas City
Curdy, Robert J., Kansas City
Curran, Edward J., Kansas City
Curran, Kevin E., Kansas City
Dann, David S., Kansas City
DeMaria, Peter F., Kansas City
DeVilbiss, E. F., Kansas City
Deweese, E. R., Kansas City
Dickson, Frank D., Kansas City
Dimond, Edgar A., Kansas City
Diveley, Rex L., Kansas City
Dixon, O. J., Kansas City
Donaldson, Clyde O., Kansas City
Downey, James W., Kansas City
Duer, Mildred C., Kansas City
Duncan, Ralph E., Kansas City
Duncan, William H., Kansas City
Dwyer, Hugh, Kansas City
Edmundson, J. Phil, Kansas City
Eldridge, Charles J., Kansas City
Elliott, B. Landis, Kansas City
Elliott, James R., Kansas City
Elliott, Raymond G., Kansas City
Eubank, A. E., Kansas City
Eubank, Will R., Kansas City
Feierabend, Frank L., Kansas City
Feist, George V., Kansas City
Ferguson, Eugene H., Kansas City
Findley, James W., Kansas City
Flanders, Horace F., Kansas City
Frick, John P., Kansas City
Gaskins, John H., Kansas City
Gay, Ray J., Kansas City
Gestring, Hugh A., Kansas City
Gilkey, Harry N., Kansas City
Gilles, Clifford L., Kansas City
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Gist, William L., Kansas City
Gist, William W., Kansas City
Glasscock, Ernest L., Kansas City
Goldberg, Isadore E., Kansas City
Goldman, Max, Kansas City
Goodman, Leroy, Kansas City
Goodson, William H., Kansas City
Grauerholz, J. W., Kansas City
Green, John R., Independence
Green, Stanley, Independence
Greene, W. Wallace, Kansas City
Growdon, J. A., Kansas City
Hall, Thomas B., Kansas City
Hallberg, J. W., Kansas City
Halperin, Phillip H., Kansas City
Hamilton, Buford G., Kansas City
Hardacre, Ruth A., Kansas City
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Haynes, Solon E., Kansas City
Heller, Edward P., Kansas City
Helwig, Ferdinand C., Kansas City
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Hickerson, William H., Independence
Hink, Frederick W., Kansas City
Hodgson, Frank H., Kansas City
Hoeper, Samuel D., Kansas City
Hoffman, Jacob S., Kansas City
Hollweg, Kenneth C., Kansas City
Howard, John C., Kansas City
Hunt, Claude J., Kansas City
Hunter, Martin P., Kansas City
Hurwitt, Frank, Kansas City
Jacob, Walter P., Kansas City
Jansen, Robert, Kansas City
Jarvis, James A., Kansas City
Jenett, James H., Kansas City
Johnstone, Paul N., Kansas City
Jones, Harry L., Kansas City
Jones, Kneeland P., Kansas City
Jones, Theodore Reid, Kansas City
Juarez-Reyna, Guillermo, Kansas City
Keeling, Irene, Kansas City
Keith, Willis E., Kansas City
Kelly, Eugene H., Kansas City
Kennedy, John O., Kansas City
Kerr, R. W., Kansas City
Kienberger, Paul A., Kansas City
Kiene, Richard H., Kansas City
Kitchen, William M., Kansas City
Klein, Edward H., Kansas City
Klepinger, Dayton P., Kansas City
Knight, John S., Kansas City
Knight, Lyle B., Lees Summit
Koenig, Frank J., Kansas City
Korth, William M., Kansas City
Kraft, Jacob, Kansas City
Kyger, Fred B., Kansas City
Kyner, Thomas, Kansas City
Laffoon, France L., Kansas City
Lamar, Frederick O., Kansas City
Lapp, Harry C., Kansas City
Lapp, John G., Kansas City
Layton, Ira C., Kansas City
Lee, Chester E., Kansas City
Leifer, William W., Kansas City
Leitch, Cecil G., Kansas City
Leitz, Frank B., Kansas City
Lemoine, Albert N., Kansas City
Lemoine, Albert N., Jr., Kansas City
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Lieberman, B. A., Jr. Kansas City
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Lockwood, Ira H., Kansas City
Lucy, R. E., Kansas City
Lyddon, Harold R., Kansas City
McAlester, A. W., Kansas City
McCandless, Oliver H., Kansas City
McClanahan, R. C., Kansas City
McCubbin, Clarence R., Kansas City
McFarland, M. Donald, Kansas City
McLeod, John M., Kansas City
McPherson, Owen P., Kansas City
McVay, James R., Kansas City
MacInnis, Florence E., Kansas City
Major, Hermon S., Kansas City
Mantz, H. L., Kansas City
Marks, Mark M., Kansas City
Miller, Clinton L., Kansas City
Miller, Hugh, Kansas City
Miller, Wade H., Kansas City
Monti, L. Belot, Kansas City
Moore, Lewis T., Kansas City
Morest, F. Stanley, Kansas City
Morrow, Raymond L., Kansas City
Mullen, Leo M., Kansas City
Murphy, Franklin D., Kansas City
Myers, Myron A., Kansas City
Nigro, D. M., Kansas City
Norberg, George B., Kansas City
Nunn, P. M., Kansas City
Oglevie, Rial R., Kansas City
O'Neil, James H., Kansas City
Owens, Hugh H., Kansas City
Owens, P. H., Kansas City
Pakula, Sidney F., Kansas City
Parker, Hubert M., Kansas City
Passman, Harold, Kansas City
Pearson, Paul E., Kansas City
Perry, Maxwell G., Kansas City
Petry, Ezra L., Kansas City
Pfuetze, Edwin, Kansas City
Pickard, Nicholas S., Kansas City
Pipkin, F. Garrett, Kansas City
Polk, George M., Independence
Porter, Louis, Kansas City
Potter, L. G., Kansas City
Prentiss, Harry S., Kansas City
Quistgard, Paul, Kansas City
Rader, Ada B., Kansas City
Reitz, Carl H., Kansas City
Ridge, Frank I., Kansas City
Rising, Jesse D., Kansas City
Roberts, Harold M., Kansas City
Robinson, David W., Kansas City
Robinson, E. Kip, Kansas City
Robinson, G. Wilse, Kansas City
Sanders, William F., Kansas City
Schmidt, Edward C. H., Kansas City
Schorer, Edwin H., Kansas City
Schutze, Carl B., Kansas City
Schutz, Richard B., Kansas City
Shapiro, Lazare M., Kansas City
Sheldon, John G., Kansas City
Shumate, David L., Kansas City
Simpson, Morris B., Kansas City
Sinclair, A. B., Jr., Kansas City
Singleton, J. Milton, Kansas City
Smith, Arthur B., Kansas City
Smith, Ribert W., Kansas City
Snider, Sam H., Kansas City
Stockwell, Arthur L., Kansas City
Summers, Caldwell, Kansas City
Sutton, Richard L., Jr., Kansas City
Tarson, Solomon S., Kansas City
Tasker, Charles B., Kansas City
Teachenor, Frank R., Kansas City
Thiele, George H., Kansas City
Thiessen, Edward H., Kansas City
Thomason, Henry E., Kansas City
Trippe, H. C., Kansas City
Tuttle, Floyd W., Kansas City
Underwood, Dick H., Kansas City
Unger, Harold, Kansas City
Valentine, H. S., Kansas City
Van Del, Dwight T., Kansas City
Vanorden, H. F., Kansas City
Virden, C. Edgar, Kansas City

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Wakefield, Franklin H., Kansas City
Walker, John W., Kansas City
Welker, Joseph E., Kansas City
White, Charles H., Kansas City
White, Edwin C., Kansas City
White, George A., Kansas City
Whitman, Doyle C., Kansas City
Williams, Delon A., Kansas City
Williams, V. T., Kansas City
Williamson, W. P., Kansas City
Wilson, C. C., Kansas City
Wilson, Fernando I., Kansas City
Wilson, Hester J., Kansas City
Young, Jesse W., Kansas City
Zuber, Harold V., Kansas City

Eighth Councilor District—40

Barnett, C. H., Bolivar
Beers, Ellsworth G., Seymour
Bickel, Vern T., Lamar
Bowman, Melvin C., Neosho
Cardwell, Clarence, Stella
Cheek, William C., Springfield
Cline, Edward W., Webb City
Clinton, Lloyd B., Carthage
Coffelt, Kenneth C., Springfield
De Tar, B. E., Joplin
Freeman, S. F., Springfield
Fujikawa, Y. Fred., Mount Vernon
Gale, Richard O., Joplin
Glenn, E. E., Springfield
Glover, Kenneth, Mount Vernon
H'Doubler, Francis T., Springfield
Hellweg, Charles E., Mount Vernon
James, Edward D., Joplin
James, R. M., Joplin
Jeans, V., Joplin
Johnston, J. L., Springfield
Kerr, H. L., Crane
Laney, R. L., Joplin
McIntire, E. J., Carthage
Macdonnell, C. R., Marshfield
Neff, Robert L., Joplin
Plummer, Grover C., Buffalo
Post, Winfred L., Joplin
Rigney, Levi M., Springfield
Schulte, G. A., Joplin
Scorse, Sidney W., Joplin
Sewell, Walter S., Springfield
Smith, C. Souter, Springfield
Smith, Wallis, Springfield
Threadgill, J. M., Forsyth
West, William M., Monett
White, R. N., Springfield
Wood, George H., Carthage
Yancey, D. L., Springfield

Ninth Councilor District—13

Bohrer, E. C., West Plains
Breuer, W. H., St. James
Callihan, C. F., Willow Springs
Cooper, Claude W., Thayer
Cotton, T. W., Van Buren
Davis, Harvey H., Rolla
Harsh, R. T., Houston
Herrell, R. E., Lebanon
Hogg, Garrett S., Jr., Cabool
Lytle, William R., Waynesville
Ryan, R. A., Mountain Grove
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Underwood, M. K., Rolla

Tenth Councilor District—16

Baldwin, Paul, Kennett
Bredall, Jerome J., Perryville
Carron, Oscar A., Perryville
Estes, Albert M., Cape Girardeau
Finney, W. O., Chaffee
Hall, Frank W., Cape Girardeau
Harland, R. E., Ironton
Limbaugh, Walter R., Hayti
Mitchell, S. E., Malden
Nienstedt, E. J., Sikeston
Oehler, William F., Cape Girardeau
Post, Cyril A., Poplar Bluff
Ritter, R. A., Cape Girardeau
Roberson, John H., Hayti
Roebber, H. M., Bonne Terre
Sutton, Charles E., Bonne Terre

Guest Speakers—14

Altemeier, William A., Cincinnati
Duncan, Garfield A., Philadelphia
French, Thomas M., Chicago
Griffith, Wendell N., St. Louis
Johnson, Herman W., Houston
Johnson, Scott, Jefferson City
Lull, George F., Chicago
Madden, John, Kansas City
Middleton, William, Madison, Wis.
Nichols, Donald R., Rochester, Minn.
Olsen, A. M., Rochester, Minn.
Orr, Thomas G., Kansas City, Kansas
Strong, R. S., Washington, D. C.
Zollinger, Robert, Columbus, Ohio

Visiting Physicians—70

Aiken, R. F., Marshall
Aldis, William, Kansas City
Andrews, B. W., Kansas City
Assam, Alfredo, Kansas City
Bale, George, Kansas City
Bates, Lt., Jefferson City
Bierring, W. L., Des Moines, Ia.
Blattner, R. J., St. Louis
Breit, D. H., Sioux Falls, S. D.
Bresett, J. T., Kansas City, Kansas
Bresett, L. L., Kansas City, Kansas
Brown, Charles H., Kansas City
Bublis, Mary, St. Louis
Buckner, Robert C., Kansas City
Burrell, R. B., Kansas City
Davis, J. J., Kansas City
Farney, J. P., Kansas City
Fequa, Fuchsia, Kansas City
Gallemore, J. M., Kansas City
Gants, Robert T., Kansas City, Kansas
Gardner, Paul E., New Hampton, Iowa
Gildea, Edwin F., St. Louis
Ingham, W. C., Kansas City
Israel, Milton R., Kansas City
Jennison, M. H., Kansas City
Jones, A. C., Kansas City
Keller, J. E., Kansas City
Knoch, H. K., Kansas City
Lamar, Robert, Kansas City
Leedham, Charles L., Ft. Leavenworth, Kansas
Lewis, L. G. H., Kansas City
Lichlyter, M. W., Kansas City
Lorhan, P. H., Kansas City, Kansas
Low, H. L., Kansas City
McCarthy, Frank, Sioux City, Iowa
McClure, James A., Kansas City
McQueen, John C., Kansas City
Mantell, Francis J., Excelsior Springs
Miller, Richard C., Kansas City
Naugle, W. E., Waynesboro, Pa.
Nelson, Russell, Kansas City
Nichols, D. R., Rochester, Minn.
Peterson, V. D., Kansas City
Piper, D. H., Osawatomie, Kansas
Piper, D. K., Kansas City
Rice, D. O., Galesburg, Ill.
Rubin, Sidney, Kansas City
Sanders, G. E., Kansas City
Sawyer, W. K., Brazil, Ind.
Schaff, Burnett, Excelsior Springs
Schuyler, Robert M., Kansas City
Shears, Robert, Kansas City
Sheckels, D. E., Evanston, Ill.
Shroeder, Sydney, Liberty
Siegel, Carl DeHaven, Ellis, Kansas
Siesener, H. H., Wadsworth, Kansas
Slentz, William A., Wichita, Kansas
Snyder, Maurice, Salina, Kansas
Springer, Frank, Kansas City
Sprong, Aaron A., Excelsior Springs
Stewart, John H., Kansas City
Strong, Richard M., Kansas City
Suddarth, Sterling, Kansas City
Swenson, A. L., Kansas City
Vilmer, Charles E., Kansas City
Walker, Starnes E., Excelsior Springs
Wall, Harry C., Kansas City
Williams, Stephen E., Chippewa Falls, Wisc.
Zinn, Houston, Leavenworth, Kansas
Zylberbaum, Judesa, Kansas City

Visitors—84

Barger, Mrs. O. B., Harrisonville
Barnett, N. H., Kirkwood
Berggren, Dorothy, Kansas City
Bowles, L. D., Kansas City
Bristow, Mrs. A. S., Princeton
Brown, Robert, Kansas City
Brown, M. G., Kansas City
Campbell, Mrs. A. J., Sedalia
Cardwell, Mrs. Clarence, Stella
Carmichael, F. A., Sr., Kansas City
Carter, Jeannette, Kansas City
Cashman, Betty, Kansas City
Chapman, Faye, Kansas City
Clark, Ida E., Kansas City
Cremer, Mrs. W. J., Fulton
Crosswhite, Wilma, Kansas City
Davis, Gene, Kansas City
Dickman, R. W., Mount Vernon
Duncan, Mercedes, Kansas City
Edwards, Ralph W., Kansas City
Emde, Eleanor, Kansas City
Ferrell, Mrs. T. E., Springfield
Fineberg, Mrs. Maxwell, St. Louis
Foster, Mrs. Margaret R., Topeka, Kansas
Francka, Mrs. W. F., Hannibal
Fuson, Glenn H., St. Louis
Gish, Mrs. E. R., Fulton
Goltman, John T., Kansas City
Goodrich, Mrs. H. B., Hannibal
Gordon, Ruth, Kansas City
Gore, Thomas T., St. Louis
Greene, Mrs. H. L., Hannibal
Hamilton, Tom R., Kansas City
Hanna, Martha, Kansas City
Hanson, Martha, Kansas City
Hanson, J. R., Kansas City
Hirsch, Edward, St. Joseph
Hull, Thomas G., Chicago
Kendis, Mrs. Joseph B., St. Louis
Keppler, Mrs. R. C., St. Louis
Kline, D. M., Kansas City
Knight, William A., St. Louis
Landis, Coral, Kansas City
Langford, Betty, Kansas City
Lanterman, B. LaRue, Kansas City
Landau, Mrs. Daniel, Hannibal
Lewis, G. R., Korea
Lull, Mrs. George F., Chicago
McCarroll, Mrs. Henry R., St. Louis
McCullough, Maxine, Kansas City
McQueny, James, Kansas
Magill, John, Kansas City
Marsh, Samuel, Jefferson City
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Vandiver, Mrs. Virgil D., Chillicothe
Von Mayrhauser, Guido, Kansas City
Wallingford, F. C., Kansas City
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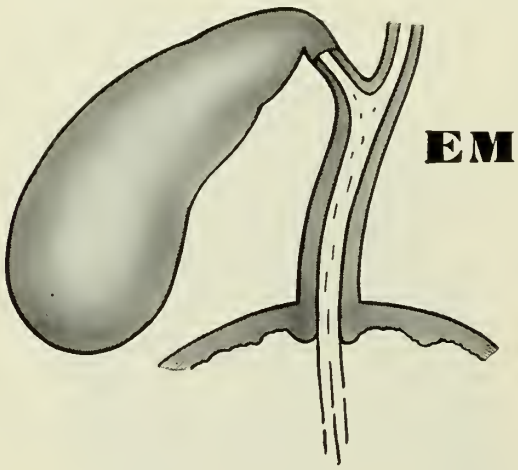
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Beck, Warren R., Chicago, Ill.
Bennett, Otis V., Kirkwood
Benton, E., Kansas City
Benton, Mrs. E., Kansas City
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Bickenheuser, Frank, Tulsa, Okla.
Blackburn, Fred, Chicago, Ill.
Bowman, E. H., Kansas City
Braden, T. E., Kansas City
Breckenkamp, A. W., St. Louis
Brunk, Raymond, Kansas City
Brookfield, Mrs. Inez P., Chicago, Ill.
Bruce, C. H., Kansas City
Brunkhorst, Ruth, Kansas City
Burch, J. A., Kansas City
Cameron, Dr. A. S., Chicago, Ill.
Cherry, C. H., St. Louis
Clark, Charles H., Buffalo, N. Y.
Clark, Mrs. Charles H., Buffalo, N. Y.
Cleary, Leo A., St. Joseph
Clever, B., Kansas City
Collins, H. L., Kansas City
Corbett, R. N., New York, N. Y.
Coulter, William M., Kansas City
Counsell, John E., Kansas City
Craig, Dr. Paul E., Tulsa, Okla.
Craighead, Albert, Kansas City
Craighead, Mrs. Helen, Kansas City
Craighead, Robert, Kansas City
Cramblet, L. H., St. Louis
Cromer, Melvin A., Chicago, Ill.
Damuth, H. F., Philadelphia, Pa.
Davis, R. E., Columbus, Ohio
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Dumas, E. L., St. Louis
Dumas, Mrs. E. L., St. Louis
Edmiston, F. L., Louisville, Ky.
Ericson, C. E., Kansas City
Ericson, Eric H., Evanston, Ill.
Erickson, L. Roy, Evanston, Ill.
Fortner, M. A., Kansas City
Fossieck, Byron E., St. Louis
Fox, Byron R., Kansas City
Frierdich, W. L. H., Kansas City
Fritts, R. M., Kansas City
Fuhrman, T. H., Chicago, Ill.
Gammon, Robert, Detroit, Mich.
Gantt, Edward T., Kansas City
Girard, Howard, Kansas City
Gordon, Herbert, Kansas City
Graebner, Paul, Kansas City
Grant, J. L., Chicago, Ill.
Gray, Donald E., St. Louis
Greb, E. M., Kansas City
Hale, J. J., Kansas City
Hart, L. W., Kansas City
Hartwell, Warren S., Norwich, N. Y.
Hatchett, Ray C., Kansas City
Hazelwood, Robert, Kansas City
Heath, Jack, Kansas City
Heinen, R. W., Kansas City
Hendrickson, F. L., St. Joseph
Hensler, Alan, Kansas City
Hewitt, Con M., Kansas City
Hicks, C. O., Kansas City
Hine, Robert J., Kansas City
Holder, R. W., Kansas City
Holland, Eugene C., Overland Park, Kansas
Holzapfel, Paul, Kansas City
Hubbs, Ivan, Chicago, Ill.
Hutcherson, F. E., Kansas City
Inman, D. O., Springfield
Jacks, R. H., Kansas City
James, T. D., St. Louis
Janes, H. W., Kansas City
Jennings, Bill, Kansas City
Jennings, W. G., Chicago, Ill.
Johnson, Charles F., Kansas City
Jones, C. Truman, Kansas City
Jones, O. H., Kansas City
Karnes, E. L., Minneapolis, Minn.
Karnes, Mrs. E. L., Minneapolis, Minn.
Keppler, R. C., St. Louis
Kerns, V. L., Kansas City, Kansas
Lampe, Joseph E., St. Louis
Lane, G., Kansas City
Laurel, Johnson, Orange, N. J.
Leder, R. E., Kansas City
Lipsky, Eugene C., Kansas City
Lusk, E. R., St. Louis
Luthy, R. G., Kansas City
Lynch, Evelyn, Kansas City
McBride, H., St. Louis
McKee, W. W., New York, N. Y.
MacKenzie, E. D., Kansas City
McKeon, E. L., St. Louis
McManus, J. W., Detroit, Michigan
McMullen, H. D., Kansas City
McNerney, Joe, Kansas City
Malloy, W. C., Nutley, N. J.
Mannin, James P., Kansas City
Marty, B. A., Decatur, Ill.
Maus, Ralph, Kansas City
Meffert, Carl G., New York, N. Y.
Melhinch, Seth L., Kansas City
Miller, R. C., Chicago, Ill.
Mitchell, Howard, Kansas City
Mueller, J. H., Chicago, Ill.
Murray, Jim, Kansas City
Noland, Mrs. Grace, Kansas City
Norsworthy, L. W., Kansas City
Norton, E. B., Kansas City
Olschner, Paul Q., Kansas City
Olson, George N., Kansas City
Osborne, B. T., Nutley, N. J.
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ECZEMA	128	79	7	42	61.7
HAY FEVER	425	350	36	39	82.4
ASTHMA	435	275	7	153	63.2
MIGRAINE	73	48	1	24	65.7
ANGIONEUROTIC EDEMA	54	46	1	7	85.2
ATOPIC DERMATITIS	66	42	1	23	63.6
PRURITUS	24	18		6	75.0
ERYTHEMA MULTIFORME	28	22		6	78.6
DERMOGRAPHIA	20	15		5	75.0
FOOD ALLERGY	37	32		5	86.5
CONTACT DERMATITIS	63	49		14	77.7
PHYSICAL ALLERGY	11	7		4	63.6
REACTIONS—ANTIBIOTIC	84	81	1	2	96.4
REACTIONS—DRUGS	46	42		4	91.3
REACTIONS—BIOLOGICS	12	12			100.0
DYSMENORRHEA*	44	38		6	86.3
TOTALS	2665	2116	72	478	79.39

*those cases due to histamine-induced spasm of smooth muscle.

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Spahn, Phil, Kansas City
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Stanford, S. T., Kansas City
Steffel, R. C., Kansas City
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Thomson, Edward H., Webster Groves
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Timmons, W. H., Summit, N. J.
Trauten, P. L., Elkhart, Ind.
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Trujillo, A. J., Chicago, Ill.
Van Lier, J., Evanston, Ill.
Van Oosterdiep, W. J., Kansas City
Vasholtz, Earl, Kansas City
Viarango, D., Braintree, Mass.
Waldrond, Jess, Kansas City
Wandel, C. B., Elkhart, Ind.
Wear, Charles W., Kansas City
Wertzberger, Mars V., Kansas City
White, Eldridge, Kansas City
Wiseman, Clyde C., Kansas City
Wood, F. J., Kansas City
Wood, H. L., Kansas City
Wyly, William J., Kansas City
Total—935

BOOK REVIEWS

Normal Encephalorgam, The, by Leo M. Davidoff, M.D., Professor of Clinical Neurological Surgery in the College of Physicians and Surgeons, Columbia University; Attending Neurological Surgeon to the Montefiore Hospital, New York City; and Cornelius G. Dyke, M.D., Late Professor of Radiology in the College of Physicians and Surgeons, Columbia University; Late Director, in the Department of Radiology of the Neurological Institute of New York; New York City. Second Edition, Thoroughly Revised, Illustrated with 155 Engravings. Lea & Febiger, Philadelphia. 1946. $5.50.

The body of the subject material in this book concerns itself with what might be termed "Encephalographic Anatomy." That is—the anatomy of the living brain and its coverings as viewed by means of the contrasting shadows of tissues and gas in the stereoscopic roentgenograms. It represents the conclusions drawn following careful and painstaking study of more than 8,000 encephalograms.

The authors feel that encephalograms are indicated in any patient with a suspected intracranial lesion who does not have clinical evidence of increased ntracranial pressure. In those cases with clinical evidence of increased intracranial pressure the method of choice of studying the intracranial lesion is by centriculography because of doing the spinal punctures in these individuals.

The authors use fairly large dosages of atropine sulphate (1/75 to 1/50 gr.—.0007 to .001 gm.) rather than morphine in their operative medication as the latter appeared to cause some depression of vital centers during the procedure which required caffeine stimulation.

They carry out the entire procedure in the department of radiology. The patient is seated on a comfortable bench with the forehead resting against a vertical Potter-Bucky diaphragm, and the lumber puncture is done in this position. The gas of choice is helium because of less irritation and quicker absorption. The second choice of gas is oxygen.

Initially 10 cc. of spinal fluid are removed and replaced by 5 cc. of gas. Thereafter for each 5 cc. of spinal fluid removed 5 cc. of gas are injected. After 20 cc. have been injected a film is taken in the vertical posterior-anterior projection. From this exposure one gains an estimation of the sie of the lateral ventricles, and so may judge approximately how much total gas will be required for arequate visualization of the intracranial structures. In those cases with normal sized lateral ventricles from 50 to 75 cc. of gas have been found to be sufficient.

Their practice is to take films immediately following the injection of the gas. Stereoscopic roentgenograms in both the horizontal and vertical positions, in the antero-posterior, posteroanterior, and the right and left lateral projections are mare, thus assuring that all portions of the intracranial space have been visualized.

Approximately 90 per cent of the cases showed reaction to encephalography. These reactions consisted of headaches, vomiting, nausea, chilliness, perspiration, pallor, drowsiness, weak and slow pulse, cyanosis, pain in back, hiccough, anorexia and urinary retention in the order of their frequency of occurrence. One of the primary factors in the production of reactions was found to be the amount of gas used in the study. In patients who had received from 30 to 60 cc. of gas, symptoms were found to be present for an average of 1.9 days. In those receiving from 60 to 90 cc. of gas, symptoms persisted for 2.5 days, and in those receiving 90 to 120 cc. symptoms persisted for ana average of 3.3 days. The severity of symptoms are most pronounced as a rule in patients with brain tumors.

The authors had nine fatalities in more than 8,000 cases—two of these had anuerysms of cerebral arteries; four had brain tumors; one was a child with advanced central sclerosis in whom the cause of death could not be determined by autopsy; one was a child who suffered a massive subarachnoid hemorrhage, and the last suffered a coronary occlusion six hours following encephalography.

The remainder of the volume gives the roentgenologic details of the normal encephalogram with excellent reproductions to illustrate the anatomic structures of the brain and meninges. I. H. L.

Preoperative and Postoperative Treatment, by Lt. Col. Robert L. Mason, M.C., A.U.S., Cushing General Hospital, Framingham, Massachusetts, and Harold A. Zintel, M.D., Harrison, Department of Surgical Research, University of Pennsylvania School of Medicine; Assistant Surgeon, Hospital of the University of Pennsylvania. Second Edition, Illustrated. W. B. Saunders Company, Philadelphia and London. 1946. Price $7.00.

This book of 560 pages, including an appendix giving laboratory findings, in blood and urine, in health and disease, is written in good common sense style. It's study will enable the reader to proceed in proper evaluation and treatment of the patient's particular preoperative or postoperative problem.

This is a valuable book for the intern and resident and should be in each hospital library as required reading. I am sure that certain portions of the book would be beneficial reading for all instructirs of nurses.

The book consists of contributions by twenty men of special training in the field they discuss. Facts are



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presented succinctly and specific suggestions are made as to treatment.

There is an occasional "G.I." note detected; for instance, in speaking of diet; "The patient must be given to understand he must take all of it. If there are any complaints he must be told it is his duty to take what is given him without question." Oh, well, they never did it in the army either!

The chapter on wound disruption is weak.

I found reading the book profitable and recommend it to all members. R. R. C.

Gynecological and Obstetrical Pathology, with Clinical and Endocrine Relations, by Emil Novak, A.B., M.D., D.Sc. (Hon. Dublin), F.A.C.S., Associate in Gynecology, The Johns Hopkins Medical School, Gynecologist, Bon Secours and St. Agnes Hospitals, Baltimore; Second Edition with 542 Illustrations, 15 in Color, W. B. Saunders Company, Philadelphia and London. 1947. Price $7.50.

The book takes full cognizance of all worthwhile additions to the knowledge since the publication of the first edition, and the lists of references appended to the various chapters have been brought up to date. These are not, of course, meant to be exhaustive but they do give the student a working list of the more worthwhile contributions bearing on the various subjects.

The addition of more than a hundred new illustrations, including a considerable group of color pictures, has increased the size of the book. There also has been a substantial increase in the number of illustrations of gross lesions.

There are thirty-four chapters. The first chapter deals with "The Endocrinology of the Menstrual Cycle and Pregnancy." In the next twenty-eight chapters the gross and microscopic pathology of neoplastic and inflammatory diseases of the female generative tract is considered. Chapters 30 and 31 deal with special subjects; namely ectopic pregnancy, pelvic endometriosis, implantation and placentation, hydatidiform mole and chorionepithelioma malignum. The last chapter deals with abnormalities and diseases of the placenta and appendages (other than hydatidiform mole and chorionephithelioma) by L. M. Hellman. E. L. D.

Fundamentals of Clinical Neurology, By H. Houston Merritt, M.D., Professor of Clinical Neurology, College of Physicians & Surgeons, Columbia University; Chief of Division of Neuropsychiatry, The Montefiore Hospital; Fred A. Mettler, M.D., Ph.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University, and Tracy Jackson Putnam, M.D., Professor of Neurology and Neurological Surgery, College of Physicians and Surgeons, Columbia University. The Blakiston Company, Philadelphia and Toronto. 1947. Price $6.00.

This is an excellent short work on clinical neurology. The treatment is mostly confined to fundamentals, without elaborating discussion on controversial subjects or consideration of theoretical aspects. There are no references to the literature. The book is intended for students and all practitioners but in such a presentation the specialist also can find much that is useful. The illustrations are numerous and excellent but unfortunately the labels are in too small print. The book is heartily recommended. L. B. A.

Head, Neck and Trunk, The, Muscles and Motor Points, by Daniel P. Quiring, Ph.D., Head of the Anatomy Division, Cleveland Clinic Foundation and Associate Professor of Biology, Western Reserve University. Illustrated with 103 Engravings. Lea & Febiger, Philadelphia. 1947. Price $2.75.

The purpose of this 115-page volume is expressed in the Preface: "to portray in diagrams and condensed descriptions the individual muscles of the head, neck and trunk, together with their chief arterial and nerve supply." It is designed as a companion volume to "The Extremities."

The diagrams are based on original dissections and references to the literature. Three fourths of the book is utilized for the muscles of the component parts of the head and neck. Deep muscles of the back, muscles of the thorax, anterior abdominal, pelvic and perineal muscles are described in the remaining pages.

Motor points, approximate positions of the facial, hypoglossal and ansa hypoglossi nerve branches are depicted as the concluding diagrams.

As a reference for students and physicians this text is valuable. The diagrams are simple. Each muscle is described according to origin, insertion, function, nerve and artery supply.

Page references to Gray and Cunningham texts of Anatomy are included.

The table of contents and the index are well arranged to facilitate its use. F. L. M.

Practical Physiological Chemistry, by Philip B. Hawk, Ph.D., President Food Research Laboratories, Inc., Long Island City, New York; Bernard L. Oser, Ph.D., Director, Food Research Laboratories, Inc., Long Island City, New York, and William H. Summerson, Ph.D., Associate Professor of Biochemistry, Cornell University Medical College, New York City. Twelfth Edition. The Blakiston Company, Philadelphia and Toronto. 1947. Price $10.00.

This book's approach to physiological chemistry is easily understood. The authors have tried to summarize and simplify the up-to-date knowledge of the subject so that it is easier to grasp both by someone starting to study this field and also by anyone who wishes to review it quickly.

Specifically the chapters on "Physicochemical Properties of Solutions," the "Feces" and "Gastric Digestion" are very good.

It is written as the authors state, to be of practical values. And so is best suited to introduce someone to the field or as a reference. Any extensive study of any phase of this field would necessitate other volumes and work. B. Z. H.

A Bibliography of Infantile Paralysis, 1789-1944, With Selected Abstracts and Annotations. Prepared under Direction of The National Foundation for Infantile Paralysis, Inc. Edited by Morris Fishbein, M.D., Editor, *Journal of the American Medical Association.* Compiled by Ludvig Hektoen, M.D., Chief Editor, *Archives of Pathology,* and Ella M. Salmonsen, Medical Reference Librarian, John Crerar Library, Chicago. J. B. Lippincott Company, Philadelphia, London and Montreal. 1946.

This book is the bibliography of the periodic literature covering the clinical and investigative work on infantile paralysis since its description by Underwood in 1789. The material is arranged chronologically and access to the various phases of the subject is facilitated by a comprehensive index covering references and articles by name. The bibliography is fittingly dedicated to Franklin Delano Roosevelt. Over 8,000 articles are abstracted. The first hundred years form in themselves interesting and entertaining historical reading. The chief value of the bibliography, however, is that of a timesaver to the student of infantile paralysis. The bibliography is definitely a source book and is a very useful addition to our library. G. P.

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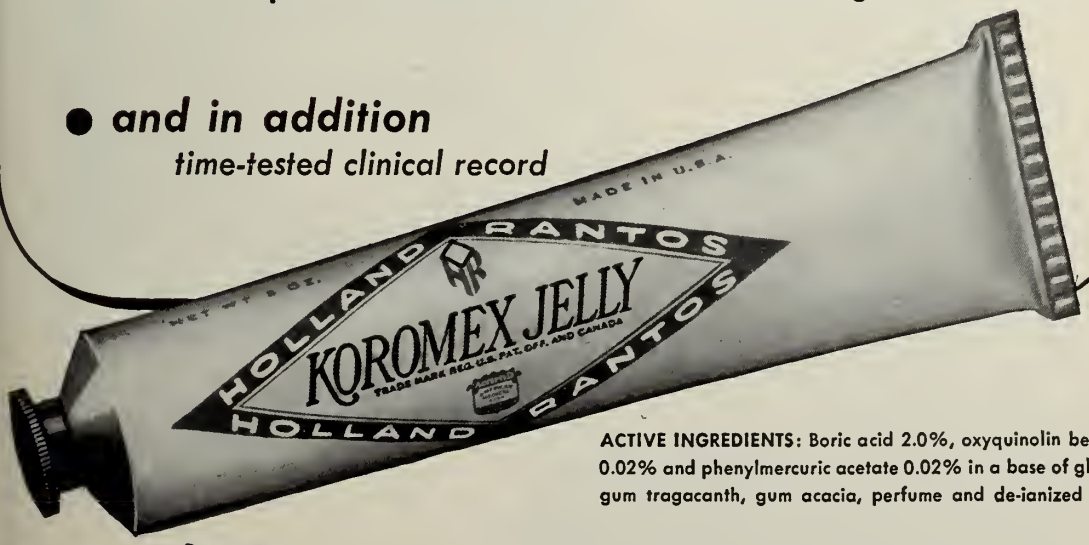
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INDEX TO ADVERTISERS

Abbott Laboratories 519
Aloe, A. S. Company 531
American Meat Institute 515
Ames Company 538
Ar-Ex Cosmetics, Inc. 545
Arlington Chemical 503
Ayerst, McKenna & Harrison 505

Borcherdt Malt Extract Co. 545
Borden Company 492
Burroughs Wellcome & Company 473

Camel Cigarettes 468
Camp, S. H. & Company 541
Ciba Pharmaceutical Products, Inc. ..... Insert
Coca-Cola Company 531
Commercial Solvents Corporation 529
Cook County Graduate School of Medicine 551

Denver Chemical Mfg. Co. 543
Duncan Laboratories 476

Faith Hospital 548

General Electric X-ray Corp. 525
Glenwood Sanatorium 544
Gradwohl School of Laboratory Technique 551

Hamilton-Schmidt Surgical Co. 545
Hanger, J. E., Inc. 546
Harrower Laboratory 521
Holland-Rantos Company 547

Isle, W. E., Co. 548

Lilly, Eli and Company ..... Insert
Lov-e Brassiere Co. 534
Luzier's Inc. 500

M & R Dietetic Laboratories, Inc. 537
Major Clinic Association 469
Mead Johnson & Company 552
Medical Protective Company 527
Milwaukee Sanitarium 513
Miscellaneous Announcements 550
Mosby, C. V. Company 480
Mullen Ambulance Company 548

National Pathological Laboratory 546
Norbury Sanatorium 548
North Shore Health Resort 544

Parke, Davis & Company 466, 467, 511, 539
Philip Morris & Company 474, 475
Physicians Casualty Association 546
Pogue, Mary E., School 545
Producers Creamery Company 523

Quincy X-ray and Radium Laboratories 545

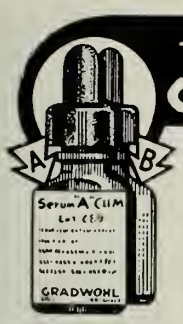
Ralph Sanitarium 478
Rare Chemicals, Inc. 495
Robinson Clinic 548

Schering Corporation 517
Schmid, Julius Inc. 509
Searle, G. D. & Company 491
Smith-Dorsey Company 533
Stokes Sanitarium 550
Swift & Company 479

United-Rexall Drug Co. 499
Upjohn Company 477
U. S. Brewers Foundation, Inc. 507
U. S. Savings Bond 549

Wallace Sanitarium 551
Washington University School of Medicine 546
Winthrop Chemical Company 471
Worrell, Dorothy 550

Zemmer Company 545



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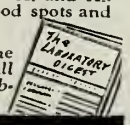
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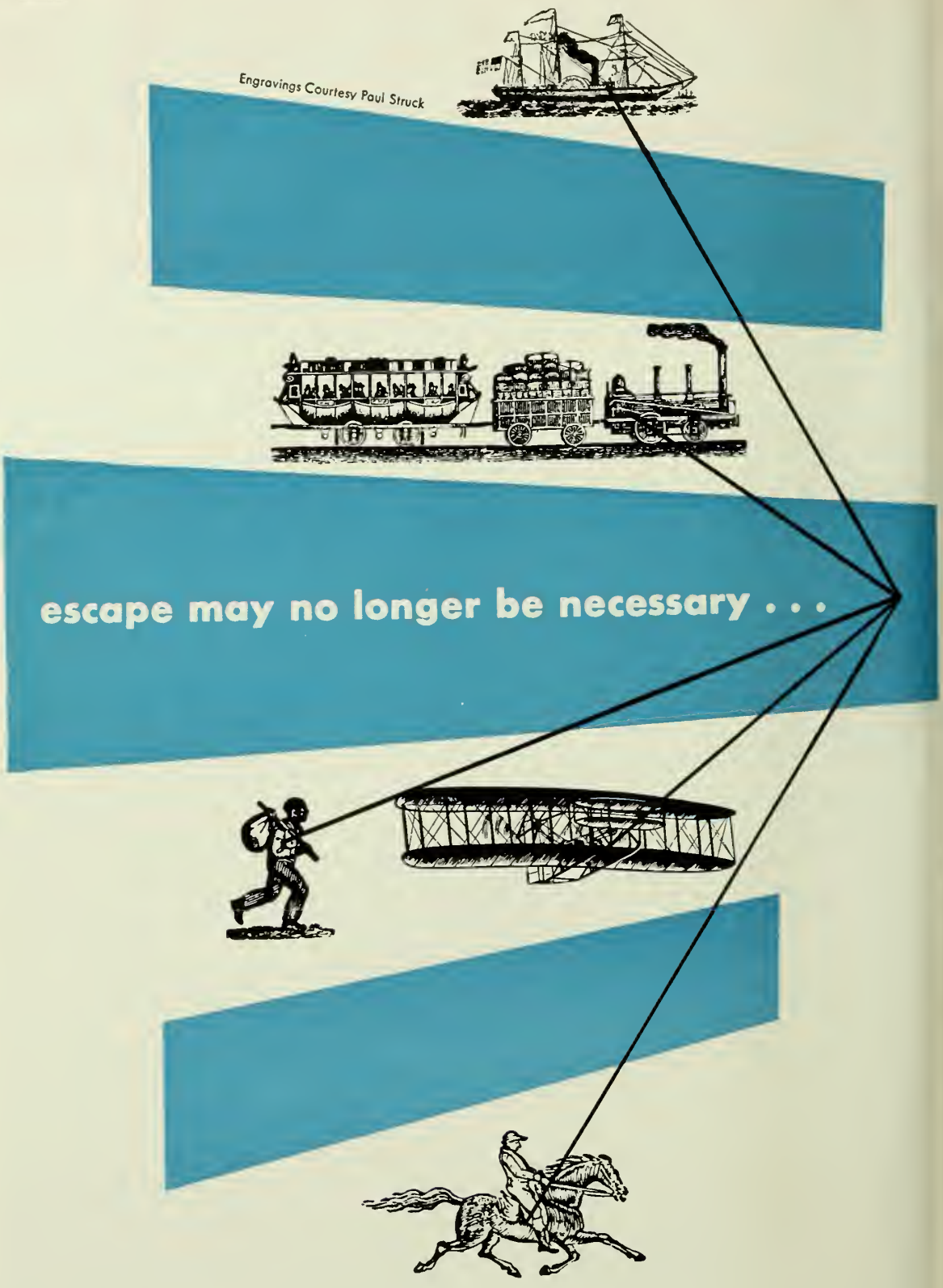
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CONTENTS

General Considerations of the Treatment of Renal Calculi. Hjalmar. E. Carlson, M.D., Kansas City, Mo. 571
The Treatment of Pruritis Ani. Clifford C. Wilson, M.D., Kansas City, Mo. 575
Nodular Goiter. Robert W. Bartlett, M.D., St. Louis 576
Special Article—
The Making of a Surgeon Yesterday and Today. Barney Brooks, M.D., Nashville, Tenn. 578
York, N. Y. .....
Tumor Seminar. Arthur Purdy Stout, M.D., New York, N. Y.—
Carcinoma of Breast With Paget's Disease..... 584
Undiagnosed Tumor of the Thigh..... 585
Liposarcoma of Thigh 586
Hodgkin's Disease 587
Multiple Myeloma (Plasma Cell Type) With Early Manifestation in the Gum of the Mandible 588
Adamantinoma of Mandible 589
Osteogenic Sarcoma of the Mandible..... 590
Glomus Tumor of the Elbow 591
Leiomyosarcoma of Arm 592
Fibrous Xanthoma (Sclerosing Hemangioma Type) of Leg Associated With Comedone.... 594
Neurilemoma of Lateral Costal Region..... 596
Carcinoma of Parotid Salivary Gland..... 598
Carcinoma, Cylindromatous Type, of Submaxillary Gland 600
Lymphosarcoma (Lymphocyte Cell Type) of Ileum 602
Mesothelioma (?) of Ileum 607
Abstracts and Digests—
Tuberculosis in Mental Schools and Hospitals in Ohio 608
Book Reviews 609, 617
Editorials—
Hospital Survey in Missouri 611
Prepayment Medical and Surgical Care in Missouri .....4.. 611
Resolution Presented to the American Medical Association 611
News Notes 612
Organization Activities—
Committee of Maternal Welfare Gives Information on EMIC 612
Miscellany 614
Society Proceedings 614
Commercial Announcement 630

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A. R. McComas, Sturgeon, 1946-1948; alternate, W. A. Bloom, Fayette. W. L. Allee, Eldon, 1946-1948; alternate, M. Pinson Neal, Columbia. James R. McVay, Kansas City, 1947-1949; alternate, A. J. Campbell, Sedalia. R. E. Schlueter, St. Louis, 1947-1949; alternate, F. G. Pernoud, St. Louis.

Standing Committees

Scientific Work—Raymond O. Muether, St. Louis, Chairman (1948); Rex L. Diveley, Kansas City (1949); W. A. Bloom, Fayette. **Associate Members**—Victor B. Buhler, Kansas City; W. J. Stewart, Columbia.

Postgraduate Course—Raymond O. Muether, St. Louis, Chairman (1948); Guy D. Callaway, Springfield (1950); M. Pinson Neal, Columbia (1949); John A. Growdon, Kansas City (1949); Edward Massie, St. Louis (1948).

Publication—Ralph L. Thompson, St. Louis, Chairman; Everett D. Sugarbaker, Columbia; William H. Olmsted, St. Louis; Vincent T. Williams, Kansas City; G. V. Stryker, St. Louis.

Public Policy and Public Relations—Robert Mueller, St. Louis, Chairman (1949); John Growdon, Kansas City (1950); Arie C. Van Ravenswaay, Boonville (1950); Llewellyn Sale, St. Louis (1948); Frank W. Hall, Cape Girardeau (1948).

Defense—Charles E. Hyndman, St. Louis, Chairman (1948); Roland S. Kieffer, St. Louis (1950); L. F. Heimburger, Springfield (1950); O. B. Zeinert, St. Louis (1949); L. P. Forgrave, St. Joseph (1949).

Medical Education and Hospitals—Dudley S. Conley, Columbia (1949); V. V. Wood, St. Louis (1950); F. T. H'Doubler, Springfield (1950); F. L. Kneibert, Poplar Bluff (1949); James R. McVay, Kansas City (1948).

Cancer—E. C. Ernst, St. Louis, Chairman (1950); William E. Leighton, St. Louis (1949); Paul F. Cole, Springfield (1949); E. Kip Robinson, Kansas City (1948); Everett Sugarbaker, Columbia (1948).

Medical Economics—Carl F. Vohs, St. Louis, Chairman (1950); George A. Aiken, Marshall (1949); W. A. Bloom, Fayette (1949); Ira H. Lockwood, Kansas City (1948); H. E. Herbert, Cape Girardeau (1948).

Mental Health—E. F. Hoctor, Farmington, Chairman (1948); Paul Hines, St. Louis (1950); Orr Mullinax, Jefferson City (1950); B. Landis Elliott, Kansas City (1949); Frank M. Grogan, St. Louis (1949).

Maternal Welfare—E. Lee Dorsett, St. Louis, Chairman (1949); E. E. Wadlow, St. Joseph (1950); J. Milton Singleton, Kansas City (1950); Paul F. Fletcher, St. Louis (1949); J. L. Johnston, Springfield (1948).

Infant Care—O. F. Bradford, Columbia, Chairman (1948); H. E. Petersen, St. Joseph (1950); Peter G. Danis, St. Louis (1949); Park J. White, St. Louis (1949); Damon O. Walthall, Kansas City (1948).

Health and Public Instruction (McAlester Foundation)—A. W. McAlester, III, Kansas City, Chairman (1950); Joseph Conrad, Chillicothe (1950); Grayson Carroll, St. Louis (1949); Frank G. Nifong, Columbia (1948); J. V. Bell, Kansas City (1948).

Constitution and By-Laws—Joseph C. Peden, St. Louis, Chairman (1949); B. Landis Elliott, Kansas City (1950); John J. Hammond, St. Louis (1950); S. R. McCracken, Excelsior Springs (1949); J. H. Summers, Lebanon (1948).

Year indicates expiration of term.

Fractures—Daniel L. Yancey, Springfield, Chairman (1949); W. R. Bohne, St. Louis (1950); J. Albert Key, St. Louis (1950); W. J. Stewart, Columbia (1948); Nicholas S. Pickard, Kansas City (1948). **Associate Member**—Jacob Kulowski, St. Joseph.

Conservation of Eyesight—C. Souter Smith, Springfield, Chairman (1949); A. N. Lemoine, Kansas City (1950); C. P. Dyer, St. Louis (1950); Robert S. Minton, St. Joseph (1949); Robert Mattis, St. Louis (1948). **Associate Members**—Winfred L. Post, Joplin; Philip Luedde, St. Louis; John McLeod, Kansas City; G. J. Tygett, Cape Girardeau; S. L. Freeman, Kirksville; H. B. Stauffer, Jefferson City.

Control of Venereal Disease—Rogers Deakin, St. Louis, Chairman (1949); Charles Greenberg, St. Joseph (1950); Hugh L. Dwyer, Kansas City (1950); Arthur W. Neilson, St. Louis (1949); W. S. Sewell, Springfield (1948).

Industrial Health—V. T. Williams, Kansas City, Chairman (1948); E. M. Fessenden, St. Louis (1950); A. M. Ziegler, Kansas City (1949); Charles R. McAdam, St. Louis (1949); R. R. Oglevie, Kansas City (1948). **Associate Members**—Dailey Appleberry, Rivermines; Richard A. Sutter, St. Louis.

Special Committees

Physical Medicine—F. H. Ewerhardt, St. Louis, Chairman (1950); Emmett Settle, Rock Port (1950); A. J. Kotkis, St. Louis (1949); John L. Washburn, Versailles (1949); F. L. Feierabend, Kansas City (1948).

Tuberculosis—E. E. Glenn, Springfield, Chairman; H. L. Mantz, Kansas City; A. C. Henske, St. Louis; Lawrence E. Wood, Kansas City; J. L. Mudd, St. Louis; Paul Murphy, St. Louis (1948).

Study of Cardiac Diseases—A. Graham Asher, Kansas City, Chairman (1949); Julius Jensen, St. Louis (1950); Horace W. Carle, St. Joseph (1949); Drew Luten, St. Louis (1948); A. M. Estes, Jackson (1948). **Associate Members**—J. William Fleming, Jr., Moberly; Glen W. Hendon, Liberty; C. Braxton Davis, Nevada.

Rural Medical Service—R. W. Kennedy, Marshall, Chairman; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; H. E. Petersen, St. Joseph; Wallis Smith, Springfield; W. A. Bloom, Fayette; W. F. Francka, Hannibal; J. F. Jolley, Mexico; A. L. Hensen, Appleton City; George W. Newman, Cassville; A. S. Bristow, Princeton.

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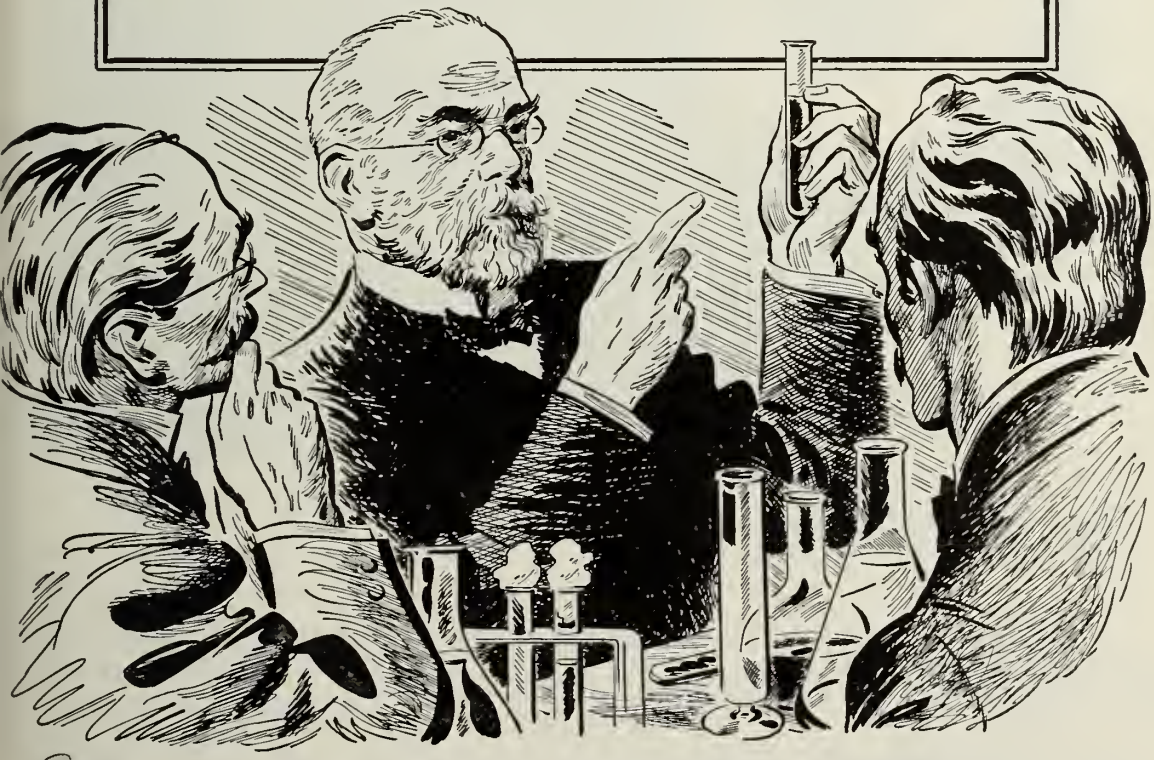
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County	District	President	Address	Secretary	Adddress
Andrew	1	V. R. Wilson	Rosendale	M. L. Holliday	Fillmore
Audrain	5	Fred Griffin	Mexico	E. F. McDonald	Mexico
Barry-Lawrence-Stone	8	Fred T. Hargrove	Monett	Kenneth Glover	Mt. Vernon
Barton-Dade	8	C. E. Duckett	Lamar	Rudolf Knapp	Golden City
Bates	6	Carter W. Luter	Butler	John M. Cooper	Butler
Benton	6	T. S. Reser	Cole Camp	James A. Logan	Warsaw
Boone	5	Maurice E. Cooper	Columbia	Charles A. Leech	Columbia
Buchanan	1	T. L. Howden	St. Joseph	Joseph L. Fisher	St. Joseph
Butler	10	Cyril A. Post	Poplar Bluff	Kenneth P. Currie	Poplar Bluff
Caldwell-Livingston	1	Donald M. Dowell	Chillicothe	Joseph E. Gale	Chillicothe
Callaway	5	William J. Cremer	Fulton	R. N. Crews	Fulton
Camden	5	E. G. Claiborne	Camdenton	G. T. Myers	Macks Creek
Cape Girardeau	10	Frank Hall	Cape Girardeau	J. H. Keim	Cape Girardeau
Carroll	1	W. G. Atwood	Carrollton	John H. Platz	Carrollton
Carter-Shannon	9	F. Hyde	Eminence	W. T. Eudy	Eminence
Cass	6	David S. Long	Harrisonville	O. B. Barger	Harrisonville
Chariton-Macon-Monroe-Randolph	2	A. P. Rowlette	Moberly	F. A. Barnett	Paris
Christian	8	R. R. Farthing	Ozark	C. A. Spears	Billings
Clay	1	M. O. Langhus	North Kansas City	S. R. McCracken	Excelsior Springs
Clinton	1			Wilber G. Spalding	Plattsburg
Cole	5	J. G. Bruce	Jefferson City	H. B. Stauffer	Jefferson City
Cooper	5	Donald N. Morgan	Boonville	J. C. Tincher	Boonville
Dallas-Hickory-Polk	8	Olin A. Griffin, Jr.	Buffalo	Walter W. Tillman, Jr.	Bolivar
De Kalb	1			W. S. Gale	Osborn
Dunklin	10	George O. Dunmire	Kennett	E. L. Spence	Kennett
Franklin	4	Herbert H. Schmidt	Marthasville	F. G. Mays	Washington
Greene	8	S. F. Freeman	Springfield	Kenneth C. Coffelt	Springfield
Grundy-Daviess	1	E. J. Mairs	Trenton	E. A. Duffy	Trenton
Harrison	1			W. A. Broyles	Bethany
Henry	6	J. O. Smith	Clinton	R. S. Hollingsworth	Clinton
Holt	1	F. E. Hogan	Mound City	D. C. Perry	Mound City
Howard	5	Morris Leech	Fayette	William J. Shaw	Fayette
Jackson	7	A. N. Lemoine	Kansas City	John A. Growdon	Kansas City
Jasper	8	Otto Blanke	Joplin	Bill H. Williams	Joplin
Jefferson	4	Karl V. McKinstry	DeSoto	Thomas A. Donnell	DeSoto
Johnson	6	R. F. McKinney	Warrensburg	R. Lee Cooper	Warrensburg
Laclede	9	R. E. Harrell	Lebanon	James L. Hope	Lebanon
Lafayette	6	Ben Brasher	Lexington	J. W. Ward	Lexington
Lewis-Clark-Scotland	2	J. R. Bridges	Kahoka	P. W. Jennings	Canton
Lincoln	4	H. S. Harris	Troy	J. C. Creech	Troy
Linn	2	E. F. Weir	Meadville	C. A. Campbell	Marceline
Marion-Ralls	2	W. J. Smith	Hannibal	Harry L. Greene	Hannibal
Mercer	1	T. S. Duff	Cainsville	J. M. Perry	Princeton
Miller	5	G. D. Walker	Eldon	Carl T. Buehler, Jr.	Eldon
Mississippi	10	G. W. Whitaker	East Prairie	E. C. Rolwing	Charleston
Moniteau	5	J. P. Burke, Jr.	California	K. S. Latham	California
Montgomery	5	S. J. Byland	Wellsville	E. J. T. Andersen	Montgomery City
Morgan	5	W. G. Gunn	Versailles	J. L. Washburn	Versailles
New Madrid	10	Claude McRaven	Marston	B. J. Allenstein	New Madrid
Newton	8	J. R. Reynolds	Neosho	J. A. Guthrie	Neosho
Nodaway-Atchison-Gentry-Worth	1	W. R. Jackson	Maryville	Charles D. Humberd	Barnard
North Central Counties Medical Society (Adair-Schuyler-Knox-Sullivan-Putnam)	2	Henry M. Humphrey	Brashear	A. F. Miller	Kirksville
Pemiscot	10	O. W. Cook	Caruthersville	C. F. Cain	Caruthersville
Perry	10	J. J. Bredall	Perryville	L. W. Feltz	Perryville
Pettis	6	A. L. Walter	Sedalia	E. L. Rhodes	Sedalia
Phelps-Crawford-Dent-Pulaski	9	Cyrus Mallett	Crocker	M. K. Underwood	Rolla
Pike	2	Eugene Barrymore	Bowling Green	Charles H. Lewellen	Louisiana
Platte	1	L. C. Calvert	Weston	E. K. Langford	Platte City
Ray	1	L. D. Greene	Richmond	T. F. Cook	Richmond
St. Charles	4	J. M. Jenkins	St. Charles	Calvin Clay	St. Charles
St. Francois-Iron-Madison-Washington-Reynolds	10	H. C. Gaebe	Desloge	Van W. Taylor	Bonne Terre
Ste. Genevieve	10	C. J. Clapsaddle	Ste. Genevieve	R. W. Lanning	Ste. Genevieve
St. Louis City	3	Carl F. Vohs	St. Louis	F. G. Pernoud, Jr.	St. Louis
St. Louis	4	Richard A. Sutter	St. Louis	Martyn Schattyn	St. Louis
Saline	6	James A. Reid	Marshall	Charles A. Veatch	Marshall
Scott	10	H. M. Throgmorton	Sikeston	A. D. Martin	Sikeston
Shelby	2	D. L. Harlan	Clarence	A. M. Wood	Shelbina
South Central Counties Medical Societies (Howell-Oregon-Texas-Wright-Douglas	9	J. R. Mott	Hartville	A. C. Ames	Mountain Grove
Stoddard	10	J. P. Brandon	Essex	W. C. Dieckman	Dexter
Taney	8			H. T. Evans	Branson
Vernon-Cedar	6	Rolla B. Wray	Nevada	Paul L. Barone	Nevada
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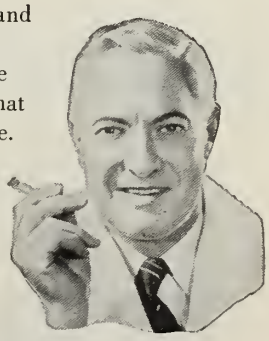




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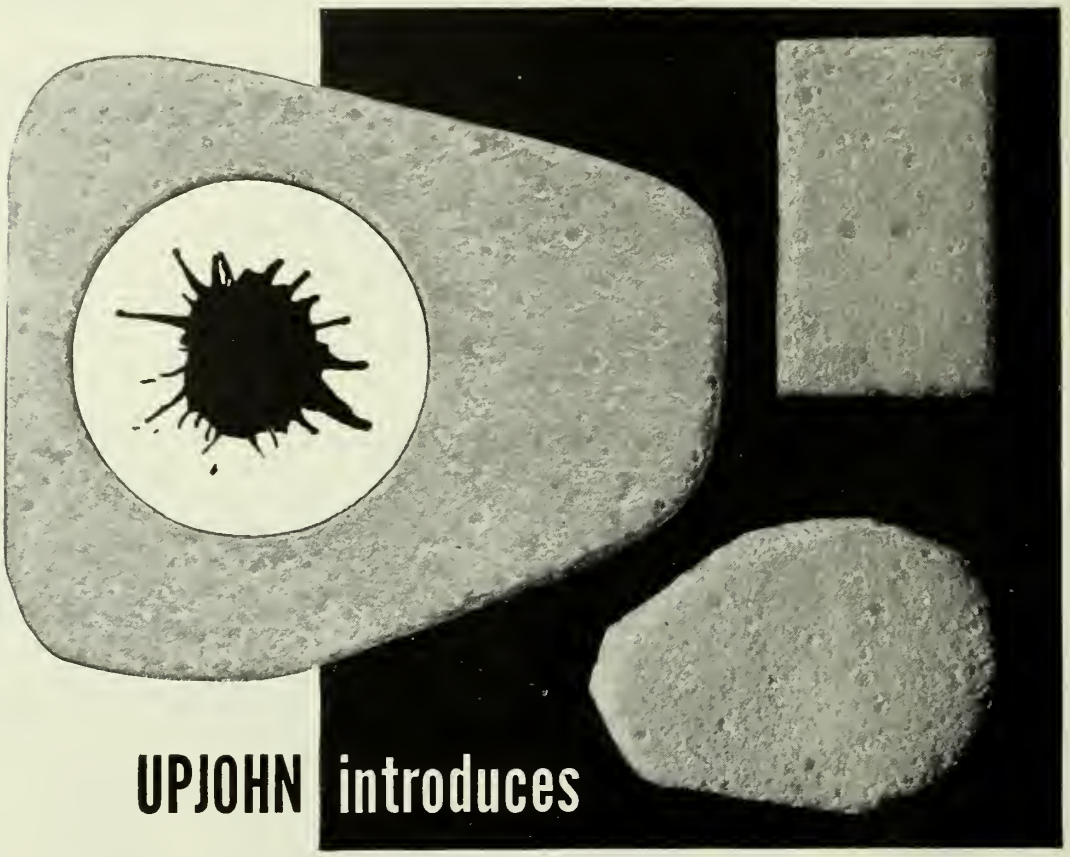


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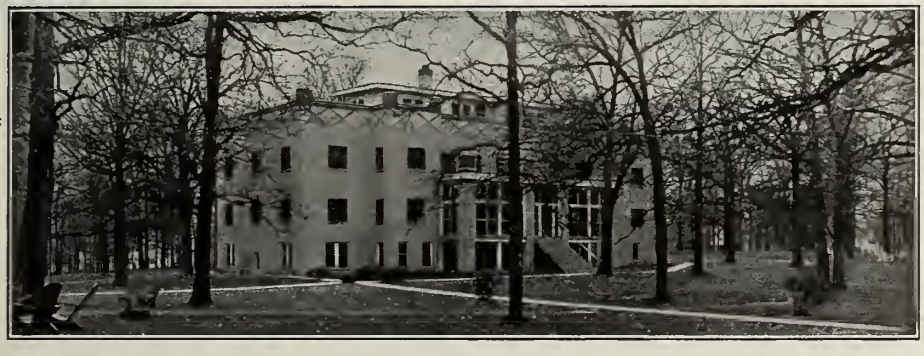
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The First Prescription...

The First Prescription was written in Egypt about 3700 B.C. Later, when the color of an herb was believed to indicate which planet it was under and for what disease it should be used, herbs were compounded with long prayers for their success to Jupiter, largest of the planets. Next, the prayers were condensed, written over the command "Recipe!" (Take!), and finally shortened to ℞ (R plus a vestige of the old sign of Jupiter).

The First Dental Prescription was Galen's, about 165 A.D.—a smooth paste for the cavity of an aching tooth (carrot, anise and parsley seeds, saffron, black pepper and opium).

Between those prescriptions—about 2030 B.C., in the Code of Hammurabi—broke the dawn of malpractice law. ("*If the doctor has caused a gentleman to die, one shall cut off his hands . . . if he has caused a slave's death, he shall render slave for slave.*")

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GENERAL CONSIDERATIONS OF THE TREATMENT OF RENAL CALCULI

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The operative indication for stone may in some instances be urgent; in other instances it may be elective or, in still other instances, it may be contraindicated. The urgent indications include such conditions as anuria, acute infection, renal hemorrhage or disabling and frequent attacks of renal colic. The elective indications include those producing few symptoms and little disability. There are also those cases in which operation is contraindicated. These will be considered in more detail later. Conservatism is ordinarily a good rule to follow in kidney surgery; however, the postponement of needed operative intervention may, in many cases, produce kidney destruction which could have been prevented by earlier operation. It is therefore necessary to remove stones before serious kidney damage occurs.

Pyelotomy.—The exposure of choice is pyelotomy. The most ideally located renal calculus, and probably the most common, is that situated in the renal pelvis and either free or obstructing the ureteropelvic junction to a greater or lesser degree. Infection is minimal and such stones can be exposed readily with a minimum of displacement of the kidney from its bed. If the calculus is small, it is wise to expose and free the upper ureter and then place a band of umbilical tape about the ureter in order to prevent descent of the calculus. The incision generally is made on the posterior aspect of the renal pelvis in the direction of the ureter. Exceptions to this are made if the renal pelvis is largely intrarenal and the incision can be made transversely. If the stone is quite large, the vertical incision may be extended upward from the renal pelvis into the kidney substance to produce a pyelonephrotomy. Such an incision is used commonly for the removal of staghorn calculi. Many renal calculi located in a calyx can be removed through a pyelotomy with the aid of special stone forceps such as the Randall forceps or its British modification. Other stones can be milked out of the calyx into the renal pelvis and removed through a pyelotomy. Closure of the pyelotomy is made generally with fine atraumatic catgut and the incision closed with drainage. Search for obstruction at the ureteropelvic junction should be made and such offending lesions as aberrant renal vessels, nephroptosis or stricture should be corrected.

Nephrotomy.—Many stones previously removed by nephrotomy are now removed by pyelotomy. However, when branching calculi are present or if a calculus is tightly imbedded in the calyx a nephrotomy is performed. For this purpose the kidney is generally more completely mobilized than for simple pyelotomy. This is particularly true when the nephrotomy is expected to be extensive and control of the vessels of the kidney by pressure is necessary. The renal pedicle may be held either between the thumb and index finger or the index and middle finger. Special clamps such as the Doyen right angle clamp can be used instead of the fingers or a simple rubber covered intestinal clamp. In general, nephrotomies are performed on the convex aspect of the kidney along the so-called but not too much avascular line of Brodel. When several calculi are present, several nephrotomies may be required. Care must be taken to prevent breaking up of the stone during its removal inasmuch as fragments may act as a nidus for a new calculus. Closure of nephrotomies is made with atraumatic suture which is approximated over pieces of fat or muscle to prevent tearing of the renal capsule. Ribbon gut is preferred by some. The use of absorbable materials such as gelfoam and oxycel is used increasingly as a pack to control hemorrhage. The calculi obtained always should be compared with the roentgen rays to be certain that no pieces have been overlooked. When calculi are difficult to locate, the kidney may be needled and a stone sometimes located. In other cases in which the calculi are difficult to locate or they have moved

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during the operation they may be localized by roentgen rays taken in the operating room. This usually is attended by considerable difficulty. If the pedicle is long the kidney generally can be mobilized sufficiently to permit the introduction of the small special cassette devised for this purpose. If the renal pedicle is short, dental film can be used or a special piece of film previously prepared and enclosed in a sterile sealed cellophane package as described by Lane should be of advantage.[1]

Nephrostomy.—Frequently when calculi are multiple or branching there is danger of fragments being left behind and because infection is sometimes a prominent part of the clinical picture a nephrostomy is performed. Irrigation of the renal pelvis both prior to the insertion of the nephrostomy tube as well as irrigations postoperatively may remove a large portion of such fragments. One of the stone solvents may be used as the irrigating medium.

Nephrectomy.—Although in general, conservatism should be the rule in the treatment of renal calculi, there are many instances in which nephrectomy is advisable to prevent recurrence and the necessity of later surgery. When one kidney is the seat of extensive calculus formation and the other kidney is normal, nephrectomy should be considered seriously. It is sometimes necessary to wait until surgical exposure has been made before a final opinion can be concluded. This is particularly true in older individuals in whom the regenerative capacity of tissue is lower than that of a younger individual. Of course, if an additional pathologic condition is present such as tuberculosis or tumor the kidney is removed.

Partial Nephrectomy.—When there is extensive destruction of one pole of a kidney and the remaining portion of the kidney appears to be normal, the diseased portion should be removed in toto together with the calculus and the kidney substance then approximated with the mattress sutures over pieces of fat or muscle tissue. This operation is advised more particularly when the seat of the disease is in a dependent calyx.

Management of Bilateral Renal Calculi.—Conservatism in the management of bilateral renal calculi is the rule. It has been aptly stated that whether or not the kidney should be operated upon depends first on the degree of obstruction, the site of the more acute symptoms, the size, type and number of calculi present, the extent of the renal damage and the relative function and amount of infection in each kidney. At present it is generally agreed that the patient with the very large calculi filling the renal pelvis on both sides is best left alone and that the patient will live longer without operation than with operative interference; however, patients with bilateral renal calculi that are less extensive may be benefitted by surgical removal of the stones although the incidence of recurrence is high. Occasionally special problems arise such as the finding of a stone in a congenital aplastic kidney (by Hess)[2] with a large stone in the opposite kidney. He expected to find a hydronephrosis due to obstruction by a small calculus. Because of the fragmentary character of many bilateral stones portions of the calculi may be left behind. The bed of the calculus also may augment the deposit of further calcareous debris and the formation of a new stone. The removal of calcareous debris can be assisted by the irrigation of the renal pelvis with the Gibson syringe or with the fibrinogen coagulum of Dees using the simultaneous injection of thrombin and human fibrinogen into the renal pelvis. Stones with which the Dees technic is ineffective are those attached to the pelvic epithelium and those lying in dilated minor calyces with small infundibula. The time involved is not great inasmuch as five minutes is sufficient to produce a tenacious fibrinogen clot. The use of nephrostomy drainage and irrigation of the renal pelvis with Suby's solution and other stone solvents is of value in dissolving small particles and in destroying any calcareous debris that may be attached to the interior of the renal pelvis. The reduction or elimination of infection by the administration of the sulfonamides, penicillin or streptomycin postoperatively is of value in the prevention of recurrence of stones.

Removal of Stone From a Solitary Kidney.—The removal of a stone or stones from a solitary kidney is somewhat hazardous and special care must be taken to prevent extensive kidney injury. The kidney should be mobilized as little as possible and if nephrotomy is required the requirements of the body in regard to total functioning renal tissue should be regarded.

Renal Calculi and Hyperparathyroidism.—The relationship of hyperparathyroidism to renal calculi was first established in 1925 and comprises about 0.2 per cent of the cases of stone. Whether or not the calculus should be removed first or whether the parathyroid tumor should be removed first depends on the circumstances of the case. When acute obstruction of the urinary tract is present it may be necessary to remove the calculus first although clinical cure can not be expected until the parathyroid adenoma is removed. Inasmuch as the stones accompanying hyperparathyroidism are oftentimes soft and composed of calcium phosphate, ureteral catheterization should be tried before resorting to operation. At present not only are the parathyroids removed but also the thyroid gland since the thyroid itself has some bearing on calcium metabolism. Should tetany occur postoperatively parathyroid hormones and calcium gluconate are administered.

Stones in Horseshoe Kidneys.—The association of stones with horseshoe kidneys is not uncommon and if such stones are located only on one side the diseased half of the horseshoe kidney can be removed.

Stones in Pregnancy.—Since calculi can be produced experimentally by estrogen therapy, it is

thought that estrogens may have some relation to calculi in pregnancy. When calculi are discovered in pregnancy conservatism is the rule. If the calculus is large it generally may be disregarded and removed from four to six months postpartum when the requirements of lactation are no longer deemed necessary. If the stone is small, treatment is also conservative unless obstruction occurs in which case surgical intervention may be necessary. The use of catheter drainage should be tried before operation is decided upon. In event that surgery is necessary the use of corpus luteum extract is advisable in order to minimize the danger of abortion.

Renal Lithiasis in Recumbent Patients.—The problem in the treatment of recumbent patients should be directed especially toward the prevention of the formation of calculi and consists of frequent turning, as often as every three hours in the paraplegic, and adequate fluid intake, the administration of vitamin A and control of urinary tract infections. Most calculi in recumbent patients are calcium phosphate and magnesium ammonium phosphate.[3]

When calculi do form many are small and will pass spontaneously. The question of surgical intervention is at times a delicate one but is indicated when the symptomatology is sufficient to warrant it.

Sulfonamide Deposits.—Concentration of the sulfonamides occurs in the tubules as the result of absorption of water after secretion in the glomeruli. When sulfonamide obstruction of the urinary passages occurs the sulfonamide is discontinued immediately. Sulfonamide stones may either be relatively insoluble and consist either of the acetyl compounds, a monhydroxyl derivative of the sulfonamides and possibly other yet uncharacterized products, or relatively soluble and composed mainly of the pure unchanged drug. The first group, however, is the most common. The precipitated particles may be either crystalloid or amorphous in character. Whether such deposits belong to the first or second group, the treatment is the same and consists of the administration of large quantities of fluid by mouth or by vein, the administration of sodium bicarbonate by mouth or by vein and the irrigation of the kidney with a 5 per cent solution of sodium bicarbonate. In the intravenous injection of bicarbonate specially prepared ampules are available for dilution and should be used. Home made bicarbonate solution should not be used unless buffered to prevent the formation of sodium carbonate when the bicarbonate is brought into solution. One sixth molar sodium lactate likewise can be used for alkalinization.

Treatment of Recurrent Calculi.—Operation on recurrent stones is accompanied by difficulty in freeing the kidney because of adhesions, by troublesome hemorrhage and by danger of destroying more kidney substance. Incision usually is made below the old scar and nephrectomy is more frequently carried out when recurrence has occurred.

Use of Stone Solvents.—The solvents used in the dissolution of calculi are Suby's solution M and G, phosphoric acid and urease solution.[4, 5] Much work has been done on the stone solvents and although some isolated dramatic results have occurred, the use of solvents to effect a complete destruction of the stone generally has been disappointing. In order to dissolve a stone the solvent must come in contact with the calculus in sufficient quantity to offset the dilution effect of the urine. From 1,500 to 3,000 cc. of fluid must be used daily. Furthermore the solution must come in contact with the stone and indwelling catheters must be so situated that the calculus is adequately bathed by the solvent. The solvent used must be sufficiently active to effect solution of the stone. The active acid in Suby's solution is citric acid which is a relatively weak acid but even it must be buffered to prevent excessive kidney irritation. Solution M is less irritating than solution G, although not as active. Even so a kidney being irrigated with Suby's solution will stop functioning and it is important that one normal kidney be present when irrigations are being carried out. Almost all patients will complain of some constant pain in the kidney which is sufficient to require at least codeine for relief.

Of the six common types of stone; namely, calcium phosphate, calcium carbonate, magnesium ammonium phosphate, calcium oxalate, uric acid and cystine stones, Suby's acid medium will attack the calcium phosphate, calcium carbonate and magnesium ammonium phosphate calculi. Inasmuch as the central portion of the stone may consist of uric acid or calcium oxalate, incomplete dissolution may result and the stone be only diminished in size. The presence of a supporting colloidal matrix also hinders the dissolution of a stone.

To assist further in dissolving calculi, phosphoric acid which is a more active acid than citric acid is resorted to. It is used in a strength of from ¼ to ½ per cent in the renal pelvis. The colloidal matrix can be destroyed by the irrigation of the renal pelvis with a solution of the enzyme urease. The use of these three solutions alternately may in some instances result in the complete disappearance of the stone. The exact place of stone solvents remains to be determined. It will not replace surgical removal of the usual calculi.

Nonsurgical Treatment.—There are some cases one does not operate upon. These include those who have passed gravel but have negative roentgen rays, those with small shadows but few or no symptoms and with a history of passing gravel, some patients who reform calculi after removal, stones associated with hyperparathyroidism and, finally, the giant calculi.

Prevention of Renal Calculi.—At operation trauma should be reduced to a minimum. In general it is felt that the early removal of calculi will help prevent calculi in the opposite kidney. Correction of obstruction at the ureteropelvic junction such as aberrant renal vessels and stricture are carried out or resection of large redundant pelves or nephro-

pexy are done, when indicated. Of course there are many cases in which no obstruction is found. Search for stone fragments either with the fingers or forceps and their removal by hemostat, irrigations or fibrinogen coagulum also is carried out. Nephrostomy tubes are introduced for drainage and irrigation if deemed necessary to remove either small fragments or assist in the healing of the stone forming areas. In the 0.2 per cent parathyroid disease the offending parathyroids and usually the thyroid are removed.

Postoperative control of infection of the kidney with penicillin, sulfonamides or streptomycin either singly or in combination is advisable. The precipitation of phosphates and carbonate is particularly enhanced by the urea-splitting organisms which produce on alkaline urine. Such organisms are the micrococcus urea, the B. proteus, the staphylococcus albus, certain colon bacilli and the influenzal bacillus. Acidifiers, which may be used, include gluconic acid, sodium benzoate with syrup of glycocol in doses of 2 grams three times a day. Follow-up analysis of the urine should be made for several months and therapy given if necessary. Foci of infection as teeth and tonsils should be searched for and eliminated. It is probable that the presence of infection is responsible for changes in the colloid fraction of the urine and alteration in its potential with a decreased ability to keep the urine crystalloids in solution.

The fluid intake in all patients having had stone should be well maintained. In order to prevent calculi it is advisable for people in the temperate zone to drink at least 2,000 cc. of fluids daily and in tropical areas 4,000 cc. This can be carried out easily by the average person by drinking two glassfuls between breakfast and lunch and two additional glassfuls between lunch and supper. The usual fluid intake at mealtime will take care of the additional requirements.

Much has been written about diets in the prevention of urinary calculi and much must yet be learned. In order to do this, an analysis of the stone must be made. Stones frequently are mixed in composition but if a stone consists of 90 per cent of one salt it may be considered to be a pure stone. In a supersaturated solution of urine consisting of several salts it is understandable that a calculus is very apt to be a combination of salts.

Since recurrent renal calculi are usually the same composition as the original stone, dietary corrections should be made as indicated by the predominant salt in the stone as determined by analysis.

The most common type is the calcium oxalate stone which comprises about 50 per cent of the stones. These require an increase in the pH and moderate alkalinization. Foods with a high oxalic acid content such as rhubarb and spinach are removed from the diet. Spinach is also high in calcium. The pH should be kept around 6.0 and alkalinization assisted by the administration of citrocarbonate.

Magnesium ammonium phosphate calculi comprise about 30 per cent of the calculi while calcium phosphate and calcium carbonate stones comprise 10 per cent. The diet for the control of these stones should be an acid ash diet, low in calcium in the latter two and one in which milk is largely supplanted by other foods.

Uric acid stones comprise 10 per cent. Uric acid is the end result of the metabolism of nucleic acid which is produced by the ingestion of purine substances. Xanthine is merely a stepping stone in the oxidation process to form uric acid. The pH of the urine should be maintained at about 6.0. The diet for uric acid stone patients should be an alkaline ash diet with the restriction of purine containing foods such as liver, brains, sweetbreads, mushrooms and kidneys. Citrocarbonate has been advised as an alkalinizing agent.

Xanthine stones are rare and only sixteen have been reported in the literature.[6] An alkaline ash diet low in purines and similar to that for uric acid calculi should be advised.

Cystine stones comprise around 1 per cent of stones and are due to a hereditary disorder of cystine metabolism. The diet in cases of cystine stones should consist of an alkaline ash diet. Such stones when formed may be dissolved by alkaline lavage.

An adequate supply of vitamin A should be given the patient having had stones and can be administered in a dosage of 50,000 U. daily.

It has been suggested that the excretion of calcium in the urine can be reduced by increasing its excretion in the stool by the administration of aluminum hydroxide in the form of amphojel. It would appear worthy of a trial at least in the chronic stone formers or as a prophylactic following stone removal. The use of estrogens such as pranone also has been advocated on a theoretical basis. The administration of this preparation experimentally will increase the citric acid excretion in the urine. The influence of female hormones is suggested by the lower incidence of stone formation in women as compared with men; however, these preparations are quite expensive when used over a long period of time and undesirable side effects occur which usually would seem to outweigh the benefit that might be obtained.

Additional dietary factors in the prevention of renal calculi are in the process of study. It is thought that an adequate supply of certain protein colloids may be of value. The administration of urea will prevent experimentally the precipitation of sulfonamides and such action is thought to be independent of the diuretic action of urea. Finally there is evidence that the citrate excretion of the urine can be increased by feeding various citric acid precursors of the C_4 dicarboxylic series (Ephraim Shorr et al).[7, 8] No doubt more will be learned in the future in regard to the prevention of renal calculi.

SUMMARY

1. The general considerations of the treatment of urinary calculi, by pyelotomy, nephrotomy, nephrostomy, partial nephrectomy and nephrectomy are discussed.

2. The management of special conditions such as bilateral renal calculi, stones in solitary kidneys, stones in horseshoe kidneys, hyperparathyroidism, stones in pregnancy, stones in the recumbent patient, sulfonamide deposits and the treatment of recurrent calculi are considered.

3. The article is concluded with a résumé on the use of stone solvents, the indications for nonsurgical intervention and the prevention of renal calculi.

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THE TREATMENT OF PRURITIS ANI

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The patient who has had most all the known treatments for pruritis ani is the best source of information as to what treatment not to try. It is not difficult to find patients who have run the gamut of treatments, for pruritis ani is not an uncommon disease and those who have had it for any length of time exhaust all efforts in their search for relief. The literature is full of good treatments, but when used, most of them prove ineffective.

There has been so much literature on this subject in the last few years that the average doctor is quite confused and comes to the conclusion that there either is not any known treatment for pruritis ani or it is all cured by the alcohol injection method. This is far from the truth. There really is a great deal to offer these patients as to a permanent cure and with a very limited amount of discomfort. With any method used, one must follow these patients for four or five years to know if his method of treatment is successful.

Etiology.—To determine properly the course of treatment, it is necessary to find out the underlying cause of the disease. A good history and physical examination make the diagnosis comparatively easy. Improper anal hygiene for the most part is the exciting factor. By stimulating itching, trauma of the skin is produced, and entry is made by the invading organism. In early cases with proper attention to anal cleanliness the itching subsides.

Allergy is a factor in 5 per cent of the cases, individuals being sensitive to some food or beverage. Whiskey is one of the more common producers of anal itching. A rare type of allergy in women is that associated with menstruation.[1] There also is contact dermatitis in those who are sensitive to the clothing they wear, toilet paper, or some form of ointment they use for hemorroids or other anal disease. Here again the history and physical examination usually clear up the diagnosis.

Ninety-five per cent of all cases of pruritis ani which are chronic and of long standing (a year or more) are caused by a fungus. The fungus is hard to isolate in man, but in women monilia are commonly found in the vaginal discharge. As between the toes, the dark and moist perineal area is excellent culture media for fungus.

OCCURRENCE

Persons with a thin skin are more susceptable to pruritis ani, and blondes more than brunettes. Men are affected more often than women, the corpulant being the more susceptable. The class of society usually affected are those in the better walks of life.

TREATMENT

Proper anal hygiene is good prophylactic treatment, and by washing the anus thoroughly after

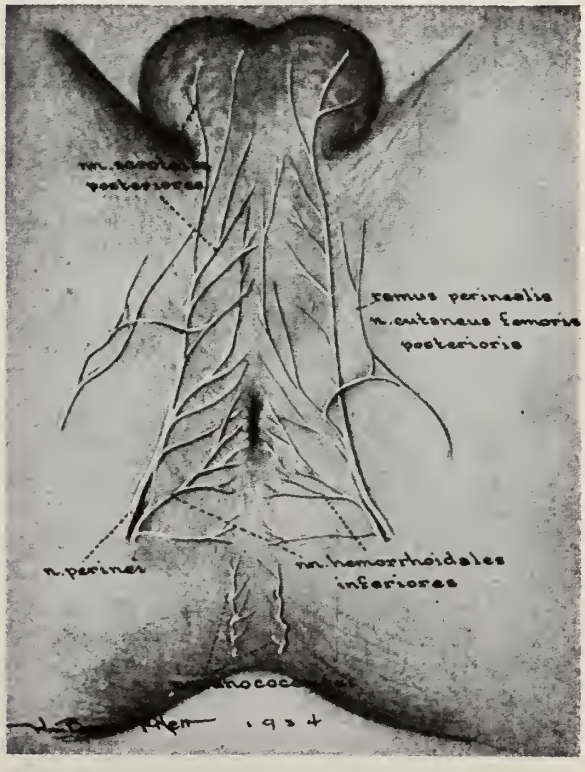


Fig. 1. Distribution and location of sensory nerves of the anal region. (Harry E. Bacon, Surg. Gynec. & Obst. 66:105-108 (January) 1938.)

each bowel movement, the mild early cases clear up quickly.

Medical treatment is ineffective except for temporary relief, and any one antipruritic ointment is probably as good as another.

Roentgen ray treatment will give temporary relief for quite a long period, but the condition usually recurs as bad as before treatment.

Vaccine therapy has never proved successful.

Tattooing was done in 1940 by a group in Brooklyn. In this treatment cinnibar was injected into the skin by means of a regular tattooing machine. This treatment has not been generally accepted.

The injection of anesthesia in oil is effective only as long as the anesthesia lasts, which is from five to ten days.

The injection of alcohol has been the most popular treatment for several years and will produce a cure providing the patient gets a large enough slough of the perianal skin.[2] Unless a slough is produced the itching soon recurs. The disadvantage of this form of treatment is that it is quite painful and debilitating to the patient.[3]

The object of all these treatments is to destroy the sensory nerve fibers, illustrated in figure 1. What better way is there of doing this than to simply cut the nerves and in such a way that they do not regenerate quickly? This is done by making radial incisions through the skin down to the mucocutaneous junction and packing the undercut surface with oxycel (fig. 2). Formerly, a rubber dam was used and the packing removed in forty-eight hours. Oxycel is an oxidized cellulose and a soluble gauze-like material which has some hemostatic properties and is absorbed in about a week.

Oxycel has many advantages. It does not have to be removed. It controls the large amount of ooze of blood that one encounters in this area. It keeps the nerve fibers separated for a much longer period and at the same time the overlying skin remains healthy. The oxycel disintegrates in about one week.

Sir Charles Ball's operation was to sever the nerve twigs[4] by two lateral elliptical incisions and the flaps were undercut to the external sphincter muscle, then the flaps were sutured by interrupted catgut. There are many other surgical modifications of the Ball operation.[5] Gabriel had one in which he divided the sensory fibers of the inferior hemorrhoidal nerve and the superficial branches of the perineal nerve.

I prefer the one in figure 2 in which radial incisions are made. The late Dr. Jelks of Memphis used a similar operation many years ago. In this operation no skin is removed. The flaps are undercut and packed with one piece of oxycel which covers the entire undercut surface to the mucocutaneous junction. All coexistant pathologic conditions such as hemorrhoids, fissures and crypts are removed. Cryptitis is almost always associated with pruritis ani.

The external sphincter should be severed partially to allow for a slight stenosis that one encounters on healing. Finger dilitations should be frequent until it is demonstrated that the anal canal will heal to the proper caliber.

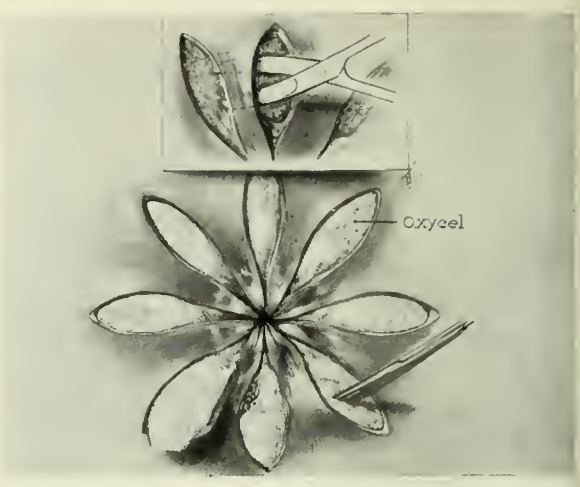


Fig. 2. Modification of Ball's operation in which radial incisions are used and oxidized cellulose is used as packing.

Oxycel has been used only recently but in the few cases in which it has been used the results have been good. I have had many five year cures and a small percentage of spot-recurrences. With the use of oxidized cellulose as packing, these recurrences should be greatly reduced. Up to this time surgery is the treatment of choice for pruritis ani of the fungous type.

SUMMARY

1. Ninety-five per cent of pruritis ani is due to fungus and 5 per cent due to allergy.

2. The more common treatments have been mentioned.

3. The fungous type is a surgical problem and the allergic is one for the allergist or dermatologist.

4. The operation preferred is a modified Ball operation as illustrated with oxidized cellulose as packing.

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NODULAR GOITER

FACTORS INFLUENCING THERAPY

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Of the various pathologic entities affecting the thyroid gland, nodular goiter is one of the commonest and most important because of the several ways

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in which it endangers the life of the individual afflicted. As I[1, 2] have mentioned briefly in previous articles, the damage sustained is the result either of thyrotoxicosis, pressure by the tumor on adjacent neck structures, malignant degeneration in the nodular gland or a combination of any of these.

Thyrotoxicosis as seen in nodular goiter generally is measured in terms of years as contrasted with the more acute fulminating type seen in diffuse hyperplastic goiter. The patient may continue with remissions and increasingly more severe relapses interspersed until finally the patient arrives at the office of the physician with the picture of cardiac decompensation secondary to advanced thyrotoxic heart disease. It must be realized that it is the grossly neglected case which usually attains this sorry state through failure of the patient to follow her family physician's advice that surgery is mandatory in order to halt the progress of heart damage. However, occasionally it is the physician himself who is at fault as a result of telling the patient he can treat her indefinitely and safely by medical means.

Though one is accustomed to thinking of the damage due to thyrotoxicosis in terms of its effects upon the circulatory system, one nevertheless must not lose sight of the overstimulation of the gastrointestinal tract often produced, resulting, in severe cases, in vomiting and diarrhea to the extent that emaciation rapidly ensues through failure of assimilation of the calories necessary to maintain nutrition.

The nervousness, tendency to cry without cause, and intolerance of petty annoyances characterize the overstimulation of the nervous system and from time to time one encounters instances of almost spectacular improvement in the patient's attitude toward home conditions after the removal of the goiter. Then, too, one must not forget the occasional thyrotoxic psychosis which is usually an indication of severe intoxication and which may terminate fatally unless the thyrotoxicosis can be checked by medical means. Under no circumstances should surgery be considered as long as the psychosis is present.

It is stated repeatedly in the literature by competent authority and it is likewise my own opinion that more than 50 per cent of nodular goiters sooner or later during the patient's life become toxic. Any physician can recognize the textbook picture of thyrotoxicosis but many times it is difficult to tell the mildly toxic from the nontoxic state. At this point I should like to make it clear that no certain basal metabolic rate can be selected arbitrarily as the dividing line between toxic and nontoxic since in most instances one does not know what the particular individual's basal metabolic rate was in normal health. For example, one who has a rate of minus 15 per cent in good health and whose metabolism rises to plus 15 per cent as a result of thyrotoxicosis is just as sick clinically as the person whose rate rises from a normal of plus 10 per cent to plus 40 per cent. Both of these individuals attain an equally gratifying relief of symptoms from thyroidectomy.

The structures most commonly affected by pressure from nodular goiter are the trachea, esophagus and recurrent laryngeal nerves with the result that these patients may complain of difficulty in breathing, especially when extending the neck, obstruction to swallowing, or recurrent episodes of hoarseness. The occurrence of a rather sudden enlargement of a nodular goiter with increased pressure symptoms and mild discomfort in the neck usually signifies that hemorrhage has taken place into an adenoma. This phenomenon occasionally may produce enough tracheal obstruction to require an emergency thyroidectomy. My associates and I have had such an experience as this within the last few weeks at which time it was necessary to perform a thyroidectomy late one afternoon on an elderly woman for a large nodular goiter which was producing so much interference with her airway that it seemed improbable that she could get through the night unless relief was provided.

The third principal manner in which the individual's life is endangered in nodular goiter is by malignant degeneration which occurs far more often than ordinarily is thought. In support of this statement let me cite the figures of Brenizer and McKnight's[3] series showing a cancer incidence of 4 per cent, Ward's[4] 4.8 per cent, Pemberton's[5] 4.9 per cent and Cole's[6] 7.2 per cent. To this I would add an incidence of 4.2 per cent in the last 321 thyroidectomies for noduar goiter in our private practice.

An analysis of the series of 321 shows that the average age of the cancer patients was 53 years although they ranged from 33 to 80. The average time that a lump was known to have been present in the neck was nine years, and 66.6 per cent were in females. In 83 per cent of the cases the goiter was nontoxic and in two thirds of the total the cancer arose in a solitary adenoma.

It is common knowledge that carcinoma tends to originate particularly in solitary adenomata. However, a new and unexplained fact was brought forth by Cole's[6] study showing that the occurrence rate of carcinoma is much higher in nontoxic than in toxic nodular goiter. The importance of this finding will be stressed a little later.

In most instances the definite diagnosis of carcinoma of the thyroid is made postoperatively with the microscope and it was Allen Graham[7] who established the criteria of thyroid malignancy as consisting of blood vessel invasion, extension through the capsule of the adenoma or capsule of the gland, or the existence of metastases.

Clinically, one may be suspicious of malignancy when there is a history of recent rapid growth with perhaps slight discomfort in the neck, pressure on the windpipe or, perhaps, hoarseness due to invasion of a recurrent nerve posteriorly. However, acute hemorrhage into a cystic adenoma or calci-

fication in an adenoma can give the same hard feel and pressure symptoms. Only when the cancer has invaded adjacent neck structures and therefore has become fixed and immovable can the positive preoperative diagnosis of cancer be made and, at this stage, the process is beyond hope of complete surgical removal in the vast majority of cases.

Study of large series of thyroid malignancies shows that the papillary adenocarcinoma and the malignant adenoma comprise about 70 per cent of the total and since they are of a fairly low grade of malignancy the outlook from a combination of surgical removal and radiation therapy is quite favorable. On the other hand, the diffuse adenocarcinoma including the spindle cell type is much more highly malignant and usually terminates fatally.

There is no evidence to indicate that there is any direct relationship between thyrotoxicosis and cancer. The prevailing opinion is expressed by Pemberton[5] when he says, "Carcinoma of the thyroid gland has no constant effect on the basal metabolic rate and since commonly the carcinoma involves only part of the gland, it seems obvious that the variations in the level of the basal metabolic rate are dependent on the type of the coexistent benign thyroid tissue, rather than on the malignant tumor."

I have repeatedly stressed the point, as has Lahey,[8] that it is a mistake to assume that because a nodule is small or because it is in a young individual there is little danger of malignancy. The primary nodule may be quite small and only be found after much larger metastases in cervical lymph nodes have indicated the site of origin of the tumor. The incidence of malignant degeneration in nodular goiter in the teen age group has been shown by Kennedy[9] to be higher than in adults; however, the grade of malignancy is usually low and consequently the outlook for cure is good.

It is certainly true in my experience, as it is in that of other surgeons seeing a considerable number of goiter patients, that many times individuals with carcinoma of the thyroid have been told previously by a physician that the goiter was nontoxic and therefore harmless so not to bother it until it causes trouble; but the fallacy of such a statement is proved by Cole's[6] recent study which shows how much more frequent cancer is in nontoxic than in toxic nodular goiter.

It is not the purpose of this paper to enter into a lengthy discussion of the proper place of thiouracil in thyrotoxicosis; however, one may safely say that the weight of evidence makes it pretty clear that its greatest value lies in the preoperative preparation of the bad risk thyrotoxic patient, especially the patient with a nodular goiter of long standing in whom has occurred extensive heart damage. The virtue of thiouracil in such a case is that it apparently blocks the conversion of inorganic iodine into thyroxin with the result that large amounts of this secretion are not liberated into the circulation at the time of operation and consequently one is not faced with the problem of a sharp thyrotoxic reaction on top of an already impaired circulation.

Beierwalts and Sturgis[10] of the University of Michigan in treating a large series of thyrotoxic patients recently with thiouracil also employed thyroidectomy for the nodular cases because it is the stated policy of that center to operate on all nodular goiters as a prophylactic measure against carcinoma of the thyroid.

It is my custom, particularly in teaching medical students, to point out that the problem of the handling of nodules in the thyroid and in the breast is identical and that in both instances they should be removed for microscopic study.

In conclusion, it would seem reasonable to advise one's patients that the combined dangers resulting from at least 50 per cent of nodular goiters becoming thyrotoxic and from 4 per cent to 5 per cent becoming malignant far outweighs a thyroidectomy mortality of approximately 1 per cent.

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SPECIAL ARTICLE

THE MAKING OF A SURGEON YESTERDAY AND TODAY

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From more than twenty years experience in the conduct of a Department of Surgery in the Vanderbilt University Medical School, I have had an exceptional opportunity to observe at close range the entire period of the education and training of a considerable number of surgeons. At Vanderbilt University, the Medical School is in close proximity to the School of Liberal Arts which gives me an opportunity of at least moderate familiarity with

From the Department of Surgery, Vanderbilt University School of Medicine, Nashville, Tenn.
Read before the St. Louis Medical Society, May 20, 1947, at a meeting honoring Vilray Papin Blair, M.D.

the students registered in the so-called premedical college course. On and off, I have been a member of the Admissions Committee of the Medical School for a total of approximately ten years. This committee has always been fully aware of the seriousness of its job.

The Department of Surgery does teaching in each of the four undergraduate years. In the Vanderbilt Hospital the straight service internship system is employed. The period of postgraduate training ending in the residency in surgery extends over a period of five years. Conditions in Nashville have been such that an unusually large number of former resident surgeons have located in the city.

During this period there has been a tremendous increase in the complexity of methods employed in surgery and a vast expansion of the field because of the employment of surgery for many conditions previously considered the sole property of the internists. During this period there has been a corresponding increase in specialization in surgery and the organization of National Boards to pass upon the competence of the specialists. Five years ago it was, for the most part, only men who had attained the residency in surgery in university hospitals who sought to be certified in general surgery or one of its specialties. Experiences during the war apparently have led every man in this country, who has had as much training as is gotten from a nine months internship in surgery, to believe that he must, whatever the cost may be, meet the requirements of some National Board for certification. The anxiety I had a few years ago has been turned into alarm over the ever increasing restriction of knowledge of the individual surgeon and the system which has been set up to perpetuate specialization in the profession of medicine in which culture and breadth of knowledge previously have been so conspicuous.

When I received your invitation for this occasion, I hesitated to accept because I had nothing new to contribute which I considered worthy of Dr. Vilray Blair. Quite aside from the warm personal friendship which has always existed between all the Brooks and all the Blairs, I can say without any reservation that I have learned more from Vilray Blair than from any other man officially, so to speak, not my teacher. I remember and frequently quote remarks he made years ago. He has always had the happy faculty of saying things in a manner entertaining and witty and, therefore, easy and pleasant to remember. I have found not infrequently that a remark of his contained a depth of meaning which I only fully appreciated years afterward.

Vilray Papin Blair is not only known throughout the world for his contributions to surgery, but is tonight receiving what I am sure he recognizes as a greater honor by this expression of appreciation from the medical profession of the community in which he was born and continuously has lived.

Thus with an interest in medical education in general and the development of surgeons in particular, it occurred to me that this occasion gave me an opportunity to be entertaining and possibly at the same time worthwhile by inquiring into the sort of training Dr. Blair had. How could he attain and maintain eminence in the rapidly expanding field of surgery without having had the opportunities of the premedical college course, four years in an undergraduate medical school, internship, assistant residencies, resident surgeon and fulfilling the calendar requirements of an American Board for certification of ability to raise a skin flap?

I would be the last to discount the influence of ancestry or the experiences of childhood as determinants of success or failure in life. I need only mention that Dr. Blair's maternal grandfather was Dr. Timothy Loisel Papin. Dr. Blair has told me of his mother being an omnivorous reader, much of which was done aloud to the family and to which Dr. Blair ascribes the cultivation of a good memory, but which I am more inclined to believe cultivated good listening, an attribute essential to the acquirement of diversified knowledge, the importance of which in medical education is the principle theme of this address.

Dr. Blair graduated from the Christian Brothers College with an A.B degree in 1890, and in the same year matriculated in the Washington University School of Medicine which at that time was a three-year course of formal lectures. The study of medicine for some reason unknown to me proved, at the end of one year, inadequate to satisfy Mr. Blair and he spent the second year of his medical course stringing telephone wires in the Rocky Mountains, from which experience arose a desire to become an electrical engineer. Family insistence, however, prevailed and he returned to the medical school to graduate with the class in which he entered. This brings to my mind so many conversations I have had during the last five years with members of my surgical house staff who universally have believed that the period of service with the Armed Forces was a period, not only in which nothing would be gained, but in which there would be a tremendous amount lost. It has been pointed out by an authoritative member of the faculty of Johns Hopkins Medical School that the class of graduates who spent their entire fourth year in France during World War I, subsequently had a larger proportion of its members reach positions of eminence than had any other class of nearby years. Dr. Blair seemed to have lost no time by stringing telephone wires for one third of the course in the Washington University Medical School.

After graduating and being licensed to practice in 1893, Dr. Blair served in the capacity of a part-time intern for two years at the St. Louis Mullanphy Hospital; and again one finds undoubted evidence that his mind was not entirely occupied by medi-

cine for his academic attainments during this period were enough for him to receive a Master's degree from the Christian Brothers College and to become an intimate friend and disciple of Dr. Elisha H. Gregory. Dr. Gregory's influence on young Blair must have been profound and it certainly has never been forgotten.

In 1894, Dr. Blair received an appointment as Instructor in Anatomy in Washington University Medical School which he held for a period of seventeen years. It was because of this appointment that I first heard the name of Vilray Blair and subsequently came to realize one of the attributes which has led to his becoming eminent.

At the end of my period of service as an intern in surgery in the Johns Hopkins Hospital, it was my good fortune, I believe, not to have been considered with sufficient promise to be asked to continue my postgraduate training there. I accepted a position to come to St. Louis for the purpose of conducting a laboratory for the study of surgical pathology and do experimental investigation, in neither of which I had had the slightest experience. When I was first inspecting the old medical school building at the corner of 18th and Locust Streets, I came into a room in which there were several mounds of modeling clay. My curiosity was aroused and I sought information. I was told that it was in this room that Dr. Vilray Blair taught anatomy. Nearly twenty years later, after I had gone to Nashville, a celebrated German professor of anatomy came to Vanderbilt University Medical School for a series of lectures. His first and presumably what he considered as his most important lecture was entitled "A New and More Efficient Method of Teaching Anatomy by the Use of Modeling Clay," which was very near the title of a textbook by Vilray Blair published in 1906. This is by no means the only incidence in which Dr. Blair has shown evidence of being far ahead of his time.

During the nineties, surgery in St. Louis, as well as throughout the rest of the world, was by comparison with that of today a bit primitive. Pope, Hodgen and Henry Mudd had founded a good background and all of them had a vision of better days to come. Bernays had brought German surgical advances seemingly without most of the safeguards which subsequently were added by Willard Bartlett. During this period, Dr. Blair continued to teach anatomy and spent much of his time at Dr. Gregory's house. He was, for a time, what appears as a casual assistant to Dr. Tupper to whom Dr. Blair admits he was a great trial because of his inability to keep formal office hours. During this period he took advantage of every opportunity to familiarize himself with the plans for operating upon unusual cases occasionally referred to him, but admits that he usually checked plans with Dr. Gregory before operating upon brain tumors, trifacial neuralgia, mastoid operations and operations intended to compensate for obstruction of the portal vein. When Dr. W. W. Graves obtained an eight-plate static x-ray machine, he ventured into the field of roentgenology.

After six years of adventure in diverse fields of medicine, Dr. Blair still felt he was not yet prepared to be a surgeon. The worry of it undermined his health and he went to Italy to recuperate. After a period of service on tramp ships in the Mediterranean, he went to Edinburgh to enter the University Medical School. The Boer War was on and British ships were short handed for surgeons. He went down to Liverpool and applied for a place. His application was refused because he did not have with him his medical credentials. He was out of money and pawned his watch chain, a family heirloom, for a pound. On his return to Edinburgh, he received a telegram offering him the position of surgeon to a ship sailing to Para. He wired acceptance and went to the Public Library to find in what part of the world Para might be. Thus began what Dr. Blair characterizes "as the most interesting series of experiences in my life." The following is a brief description in Dr. Blair's own words.

"While different ships were being loaded I got on shore in a number of European ports. I traveled 1,000 miles on the Amazon and Negro Rivers. I returned to Liverpool with beriberi, yellow fever, small pox and malaria on the ship, after at least one over-the-side funeral every other day between Para and Madeira. The ship was then put in service to West Africa carrying troops from the Ashanti War in which I served, for a time, as acting troop surgeon. The return trip was with a shipload of patients suffering from quartan malaria whom I dosed every morning with quinine hypodermically. I was also a patient. My discharge at Madeira marked the end of this interesting set of experiences."

"The family called me home. I had no desire to go on with medicine, but I was 30 years of age and too old to go back to electricity. I married at 35 and soon found that providing for an increasing family made it necessary to settle down."

This interlude as a ship surgeon was the source subsequently of a paper entitled "Malarial and Black Water Fever."

On many occasions I have heard Dr. Blair state his everlasting gratitude to Dr. Willard Bartlett for the help he received in emerging from a period of what appears to be a strange training for the attainment of eminence in surgery.

Dr. Blair's contributions to surgery since his rather abrupt settling down to the serious practice of surgery, are well known. After a relatively large experience in all sorts of surgery, he began to concentrate his interests on surgery of the mouth and jaws, an interest which he must have had as early as 1906 because of his publication of three successive papers on this subject in that year.

On his being called into active service in the United States Army in 1917, his knowledge and skill in surgery of the mouth and jaw was sufficiently well known to the Surgeon General that, after

only one month on duty at Fort Oglethorpe, Georgia, Captain Blair was promoted to Major Blair, transferred to Washington and designated as the Chief of the Section of Oral and Plastic Surgery, subsequently to be promoted to Senior Consultant for the American Expeditionary Forces, in which he had a broad experience in the most mutilated of all war casualties. As a veteran of World War I, Dr. Blair has continued to render service as Attending Specialist in plastic surgery in the United States Veterans Administration, Jefferson Barracks.

This community, as well as the whole country, is exceedingly fortunate in that Dr. Blair not only has been able to make valuable contribution to surgery, but has possessed the happy faculty of inflamming the spark of genius in young men or, perhaps I might better say, he has shown an ability to live, with reasonable peace, with a succession of prima donnas who will carry on after Dr. Blair has been successfully bemedaled into senility of which this is only the first occasion.

During the last twenty-five years, the field of surgery has been the most important recipient of Dr. Blair's genius. There have been no such dramatic interludes as sailing the Amazon or participating in an Ashanti War, but the world outside the field of medicine has not been completely forgotten. In fact, I might say that if there has not always been something doing, there has been something brewing. The first extra surgical adventure of Dr. Blair during the period of his life with which I am most familiar was the construction of a summer cottage in Fish Creek, Wisconsin. The cottage grew year by year until it was as big as could be tolerated in a small town, which, by the way, was not too large for the Blair family. Then new cottages began to spring up on the lot until there was no more land on which to build. With Dr. Blair at the helm, the result was inevitable. He sold the place and bought a farm.

This evening is not of sufficient length for me even to mention by name the array of buildings, stone walls, wells, pools, pumping apparatus, varieties of trees, shrubs and vegetables which ultimately so choked the land that further expansion had to take place on board a boat launched in the Missouri River and equipped with all conveniences known to man.

It is well that these accomplishments are over and perhaps partly forgotten because nothing in the past has even approached that which, although under construction for the last two years, has not as yet gotten beyond addition and improvement. Surely everyone east of St. Louis to Maine and south to Florida must know that I refer to Bus Kathryn. Recently Bus Kathryn with all aboard with only an overnight stop in Nashville was enough to occupy a considerable amount of space in our daily newspapers. The *Nashville Banner* displayed prominently a news item from which I will merely quote the headline and one or two paragraphs.

"NOTED PLASTIC SURGEON TRANSFORMS BUS INTO HOME WITH ALL ITS COMFORTS

"This week Dr. Vilray P. Blair of St. Louis, world-eminent plastic surgeon, arrived in Nashville for an overnight visit not so much WITH as IN, his most startling remodeling operation.

"But then, who is better qualified than a plastic surgeon to do over an intercity bus, and at one fell swoop, solve both the current travel problem and the housing shortage?

"Enroute to Florida, Dr. Blair and his party were the guests of Dr. and Mrs. Barney Brooks—if you can call people guests who bring along their own rooms and dining facilities.

"What Dr. Blair has done, using metal plates instead of skin grafts, and rivets instead of sutures, is to lift the face of a 31 foot bus and come out with a motorized apartment for himself, his wife, her two nurses and the driver."

The news item then continued with a detailed description of accommodations superior to a President's private car.

Indeed Bus Kathryn is a symbol of Vilray Papin Blair. It stands for imagination, genius and persistence in spite of difficulty to build something big, something useful and something artistic. Even more, it symbolizes his devotion.

On such an occasion as this it seems to me distinctly worthwhile to raise the question: What would happen if Dr. Blair were to begin his medical career again in 1947? Or perhaps even more important, what is happening to the occasional young man now with like capacity whose liberties in obtaining a medical education are restricted from college to certification. Requirements whether for admission to a medical school or certification by some National Board must, of necessity, be only such as can be met by the weakest successful candidate. Meeting of any requirement often engenders complacency. If, as so often is the case, the requirement is defined as a specific time spent rather than a quality of work done, complacency comes with almost no effort at all. In obtaining certification it is not only the time spent which, in the words of your own Albert Key, "is decreed," but a list of places in which it must be spent. I have several times, particularly during the last two years, found men choosing what I considered the inferior appointment solely because it was designated as acceptable by some National Board.

Complacency of any degree was certainly not a part of Vilray Papin Blair during his early years in which all evidence points to his constant unrest, ever struggling to acquire additional knowledge and never satisfied with his training in surgery.

Knowing well the great importance of actual experience in the practice of medicine, I have viewed with increasing alarm the lack of desire on the part of the interns and assistant residents

in the Vanderbilt University Hospital to avail themselves of the ever present opportunities, a few steps distant, to obtain additional clinical experience outside of their particular assignments. I seldom see one of the medical house staff present when I am operating on a patient previously in a medical ward. Almost every day I ask about some patient and get—"I don't know. That patient is on the ward upstairs." I believe, however, the climax came last year when one of my students complained that he had been assigned one more patient than the other boys in the same group.

My conjecture concerning Dr. Blair and complacency is as nothing compared to my certainty of the utter indignation on the part of a medical school dean of the present time if confronted by a former medical student who had dropped out of school for a whole year just to string telephone wires and was then requesting reinstatement in the medical school with credit for the whole year missed. Assuming, however, he only asked to be readmitted to continue his course of study from the exact point at which it was interrupted, the matter would have to be submitted to the admission committee and, if his application blank were filled out with such honesty as to include a statement that he would rather study electrical engineering, I wonder if there is any medical school which would admit him.

Disregarding requirements for admission and irregularity because of periods of absence, I wonder if Mr. Blair would have distributed his interests in the various departments of the modern medical school in such a manner that he would have acquired in each and all of them the standard passing grade of 75. It is quite possible, or even probable, that he would have developed such a consuming interest in anatomy that he didn't make the grade in biological chemistry, in which case, to say the least, a serious discussion would take place in some committee as to whether it were not for the best interest of the school to be rid of Mr. Blair. I have, on several occasions, been a participant in such a discussion and the tragedy of it is that medical schools have been standardized and unionized by the Association of American Medical Colleges constituted by the deans of the medical schools, many of whom have never had the responsibility of caring for a sick man and not an inconsiderable number of whom have never attended a medical school. To become a *persona non grata* in one medical school makes it extremely difficult if not impossible for redemption at another. I have wondered sometimes if the punishment for failure in a medical school was not so great that an occasional student would take advantage of no one's being willing to take the responsibility of forever banishing a young man from opportunity.

I have always believed that the training of a surgeon or an internist is for the most part postgraduate, and that the most important reason for the separation of surgeons and internists was therapeutics rather than diagnosis. Undergraduates should be taught principles applicable to the broad field of medicine. Training of surgeons is accomplished best by the resident system for the future existence of which I have a considerable anxiety. I have always tried to keep in mind a statement I heard Dr. John Finney make a good many years ago. He said: "There are three sorts of surgigal house officers: first, and fortunately for my own peace of mind, the largest number composed of men who always perform the duties assigned them exactly as they had been instructed, in short, extremely satisfactory to the visiting surgeon. There is a second group, lazy, no initiative and admitted by all to be no good now or ever. There is a third group who never fail to be present when the chief is around. They are quite familiar with even the most trifling incident which has occurred to any of the patients, but they are frequently the cause of anxiety to the visiting surgeon because they have done something which they were not told to do or they have modified the instructions given. In fact, they are frequently a 'pain in the neck,' but they are the men who subsequently become eminent in surgery." It is good to remember rather frequently that the three men usually mentioned as the greatest surgeons of all times, Ambrose Pare, John Hunter and Lord Lister, were all quite irregular. I wonder how they would make out today?

I shall not again bring up a discussion of the advantages and dangers of American Boards. Before this paper was complete, the American Association of Plastic Surgery visited Nashville and I found out that Dr. Blair was one of the founders of the American Board of Plastic Surgery. I hope that any illusion which I have made to the various boards for certification will not be interpreted as meaning that I wish their destruction. It is my purpose, however, to point out the possible deleterious influence these boards may have if they deviate from the principle that they exist solely for certification of competency without any thought of influencing in any way the methods by which competency is obtained. Their requirements, which are set forth in writing, should be so elastic that certification of competency can be awarded solely on the basis of the character of a man and evidence of the quality of work he has done. From an examination of the list of men who have been certified by the American Board of Plastic Surgery, this principle has been followed;but the list I examined was, for the most part, made up of the Founders' Group, most of whom could not have qualified for examination.

Dr. Blair's career in surgery is clearly revealed by a chronological list of his contributions to surgical literature. From *The Surgeon General's Catalog,* the *Index Medicus* and the *Quarterly Cumulative Index Medicus,* I have found references to six books and 172 articles in current medical journals. The predominance of his contributions to oral and

plastic surgery is shown by the fact that this is the subject of 150 articles. The diversity of his interest is well illustrated by the following titles selected from 22 publications not related to plastic surgery: (1) "Two Practical Wrinkles in Through and Through Drainage," 1897; (2) "An Apparatus for the Application of Dry Hot Air to Different Portions of the Human Body," 1898; (3) "An Incubator for Delicate or Premature Infants," 1903; (4) "Fixation of the Kidney with Regard for Its Physiological Excursion," 1904; (5) "Conservation of the Parietal Motor Nerves in Abdominal Section," 1905; (6) "Malarial and Blackwater Fever," 1902; (7) "A Suggestion for the Treatment of Air Embolism," 1910; (8) "The Action of the Psoas Magnus Muscle," no date; (9) "Vein to Vein Transfusion," 1911; (10) "Surgical Treatment of Pulmonary Tuberculosis," 1914.

Just a few days ago I made an accidental discovery which was of particular interest to me. On February 5, 1935, Dr. Blair delivered a paper before the Southern Neuropsychiatric Association meeting in Memphis, Tennessee. The title on the program was "Observations of Psychic Manifestations in Surgical Cases." The paper was not published. In fact, it was not written. I was fortunate in being able to obtain the stenographic record made at the meeting. From this record it is quite clear that Dr. Blair was far ahead of his time in recognizing the importance of at least a modicum of psychiatry in surgery, as is shown from the following statements extracted and paraphrased from two paragraphs of his address. (1) "From observation and experience and not from special study, I have come to believe there is no part of the body in which an aberration may not be the primary cause of a neurosis." (2) "An absolute change in environment or some gripping occupation such as the care of a baby or scrabbling to support a family, may dispel neurosis, but a doctor telling the patient to forget it will never accomplish this end."

In order that you may know that this paper is not merely a first symptom of cerebral arteriosclerosis, I will enumerate the more important things which have been done at Vanderbilt to encourage students of medicine to avail themselves, not only of opportunities in all departments of the medical school, but to be on the lookout for even the most casual information which may be picked up from students or faculty of any other school on the University Campus.

1. In the reorganization of the Vanderbilt University Medical School in 1925, the site was changed from across town to the campus on which was located the other various schools constituting the University. I may add that in order to do this it was necessary to abandon a new hospital almost complete which would have contained much needed beds. I am very sure of the wisdom of this decision and I was particularly pleased this year when the students of the school of medicine induced the Student Union, composed of all schools, to select Dr. Alan Gregg as the Speaker of the Year to address the student body on the importance of a student gaining knowledge from schools other than his own.

2. In the construction of the Vanderbilt University Medical School, great credit should be given to Dr. G. Canby Robinson for the idea of placing in close proximity the departments of the fundamental medical sciences and the clinical wards and, perhaps even more important, selecting a faculty of clinicians interested in laboratory as well as clinical medicine, and the directors of the departments of fundamental medical sciences sympathetic with a clinician's viewpoint.

3. In the Department of Surgery we so far have been able to resist the establishment of any independent service in any of the surgical specialties. All patients are admitted to the surgical teaching wards as general surgical patients and so remain until a diagnosis is made. They then are assigned to the proper surgical specialist. There is only one resident. Interns are assigned to wards and thus have general and special surgical patients. Assistant residents rotate assignments of general and special surgical patients.

4. Particular effort has been made to assign to each of the surgical specialists some teaching responsibility which necessitates his maintaining a continuous interest in principles applicable to all surgery.

5. I have not at any time permitted a man to obtain the position of resident surgeon who has not had at least a year's experience in some other surgical clinic.

6. Six years ago, I committed what even some of my most loyal associates considered as rank heresy. I brought a psychiatrist and psychologist into the surgical wards. This was done not only because of an idea I got that the surgical wards were perhaps the place best suited for clinical research on some of the problems of psychiatry, but principally for the purpose of stimulating surgeons in training to extend their interests into the psychic as well as the somatic aspects of disease. I have been amazed at the change of viewpoint of even the conscientious objectors who felt quite sure patients would be insulted by even the thought of having to see a psychiatrist to the point of leaving the hospital immediately. There is no doubt in my mind but that this venture has influenced greatly my house staff to think of a patient as a human being rather than a hunk of nonprotein nitrogen and blood sugar without enough hydrogen ion concentration to absorb an autolysing appendix. It has also emphasized the importance of the surgeon's knowing at least a little about a great many things to be best able to commune with anyone. A brief mutual understanding may establish a personal relationship between the patient and the surgeon which is of great value for diagnosis and even greater influence for obtaining the most favorable result.

7. I have at times even hoped that my urging

students to read the dictionary if there was nothing else to do, would do something about the barbarous crimes they commit to the English language.

All my associates, my best friends, even those whom I can outlast at fishing, hunting or surgical operations and whom I firmly believe have never thought me growing senile, tell me that specialization, and particularly when the specialists are combined in group practice, is the trend today and that there is nothing for me to do except to get aboard the band wagon, organize the various programs designated as the only way in which the several genuses of surgeons can be made. They say it is all just a part of the grand and glorious New Deal. I expect to be designated as a Communist almost any moment. I only wish at times there was an Ashanti War going on somewhere. I would go where my fighting was more effective and it would certainly be a glorious adventure if I could serve under a Captain Vilray Papin Blair.

In conclusion, I would not be true to myself nor to my state if I failed to point out to some of you, not so fortunate as I, that the transition of Vilray Blair's life of restlessness with interludes of vicarious adventure to a life of unity of purpose and success was not merely coincidence with his coming under the influence of Miss Kathryn Lyman Johnson, who became his wife and has remained his sweetheart. Without her, surgical training fifty years ago or now would have been of no avail to bring Dr. Blair to his present eminence in surgery. Bus Kathryn recalled the sentiment expressed in a book, dedicated to a wife Kathryn, by Price Collier, when he saw a symbol of devotion of an Indian Prince to his Princess: "There may have been greater men or lovelier women. There have been, doubtless, men who have loved as much, perhaps some who have loved more, but every man who has loved a woman must envy this man for having done what he wished to do."

TUMOR SEMINAR

CONDUCTED BY ARTHUR PURDY STOUT, M.D.
NEW YORK, N. Y.

CARCINOMA OF BREAST WITH PAGET'S DISEASE

History (presented by Henry Allen, M.D., St. Louis).—The patient was a 68 year old, well-nourished, white female. She had had a lesion of the nipple for several years. On examination, posterior to the nipple and apparently extending to the upper outer quadrant of the left breast was a lump which measured about 7 cm. in diameter. The overlying nipple was flattened and almost completely obliterated, and surrounding it there was a weeping exfoliative dermatitis which bled easily and measured about 9 cm. The mass was freely movable above the underlying structures and appeared to be attached to the overlying skin. There was no palpable axillary lymphadenopathy. Roentgenograms of the chest were negative. The section is from the edge of the skin lesion.

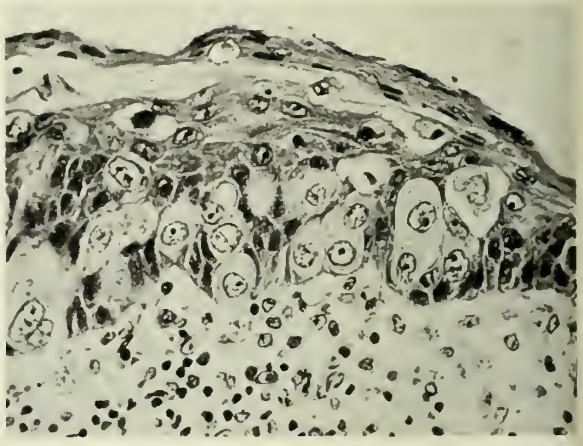


Fig. 1. Paget's disease showing breast cancer cells in epidermis.

Arthur Purdy Stout, M.D.: *Microscopic Description.*—The epidermis is infiltrated and partly replaced by cancer cells which vary from rounded to cylindrical and occur in masses or units. They grow between the epidermal cells and can be distinguished from them by their shape and by the fact that they are not united by intercellular bridges. There is no evidence of deep invasion. There is an exudative inflammation with many mononuclear inflammatory cells in the subpapillary layer of the corium of the eczematoid type associated with edema. The cellular infiltration stops at the margin of the growth but the edema extends far out beyond it. No other cancer is found in the section.

Comment.—This is an entirely characteristic example of Paget's disease of the nipple. It is interesting because of the wide intraepidermal spread of the cancer cells accompanied by the exudative dermatitis which is continuous with the cancer, and because of the complete absence of any spread of the tumor beneath the epidermis. Today I think almost everyone agrees that Paget's disease of the nipple is simply an intraepidermal spread of a carcinoma of the breast which has extended from some nidus in the breast up one or more of the nipple ducts. Recent papers by Costello and by Inglis emphasize this and urge radical mastectomy as soon as the diagnosis has been confirmed by biopsy. That is our practice at the Presbyterian Hospital even if no clinical tumor can be detected within the mammary gland. There are a number of lesions which may imitate the clinical appearance of the Paget nipple. It is quite possible to have an exudative eczematoid mammillitis without cancer. Carcinoma cells spreading upward from an underlying cancer may penetrate through the nipple tissues outside of the ducts and, when they reach the epidermis, spread within it producing an inflammatory erosive lesion. We do not follow Costello in calling this Paget's disease since it has not been caused in

The Tumor Seminor conducted by Arthur Purdy Stout, M.D., Associate Professor of Surgery, Columbia University, and Surgical Pathologist to the Presbyterian Hospital, was presented at the Ellis Fischel State Cancer Hospital, Columbia, October 26, 1946, under the auspices of the St. Louis Pathological Society and sponsored by the Missouri Branch of the American Cancer Society.

the classical fashion. Three times we have observed an intraductal benign papillary cystoadenoma of the nipple ducts project onto the surface of the nipple where it became eroded and kept continually moist. All of these were suspected of being Paget's disease but in each case biopsy established the diagnosis and simple excision of the nipple cured the patient.

There is a striking resemblance of the nipple in Paget's disease to the variety of malignant melanoma which invades the epidermis. This fact has accounted for some of the cases of so-called extramammary Paget's disease. Other lesions mistaken for it are Bowen's disease and Pagetoid or multicentric basal cell epithelioma. As Weiner pointed out, however, there are very few genuine cases of extramammary Paget's disease and these appear to be carcinomas of apocrine sweat glands with intraepidermal spread of the tumor. I have never seen one of these cases.

Although the carcinoma associated with Paget's disease is reputed to be somewhat less malignant than the average, in our few followed cases we have found very little significant difference. In fifteen cases there were axillary metastases in five or 33.3 per cent compared with 56.1 per cent for all breast cancers and the five-year cure rate was 8 or 53.3 per cent compared with 48.8 per cent for all cancers which is essentially the same.

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UNDIAGNOSED TUMOR OF THE THIGH

History (presented by Nathan Womack, M.D., St. Louis).—A red tumor (blood tumor) of the lateral surface of the left leg of about eighteen months' duration had been excised eleven months previous to admission, and the patient, a 58 year old male, was told he had a cancer. The area was treated elsewhere with radiation therapy three times a week for 9 months. One month previous to admission, the tumor re-appeared on the lateral surface of the left leg, and examination revealed an indurated mass, the lateral surface of which showed two zones of ulceration. This mass extended from the hip to the knee. A roentgenogram of the lung showed an apparent single metastasis. The tumor was widely excised. In the middle of the excised skin area (which measured 28 x 14 cm.) there was a healed scar measuring 14 cm., and at the end of this scar was a small, cauliflower-like, red-colored growth. In the area of muscle just under the small papillary growth there were large, firm, dark red tumor areas measuring 6 or 7 cm. in diameter. This tumor appeared to be intimately associated with a large tendon sheath.

ARTHUR PURDY STOUT, M.D.: Microscopic Description.—This is a complex growth the most active portions of which appear to be made up of groups of multinucleated and mononuclear syncytia loosely supported by a delicate fibrous stroma which is not especially vascular. These cells resemble those found in a central giant cell tumor of bone except for a greatly increased mitotic rate. These cell groups sometimes show a good deal of blood pigment immediately around them. They are embedded in a very dense fibrous tissue which is almost keloidal in some areas; most of it is relatively avascular and so far as I can see does not show any differentiating features. In rare areas the proliferation of phagocyte-like giant cells is associated with a formation of fibroblastic spindle cells and sometimes there are small degeneration cysts.

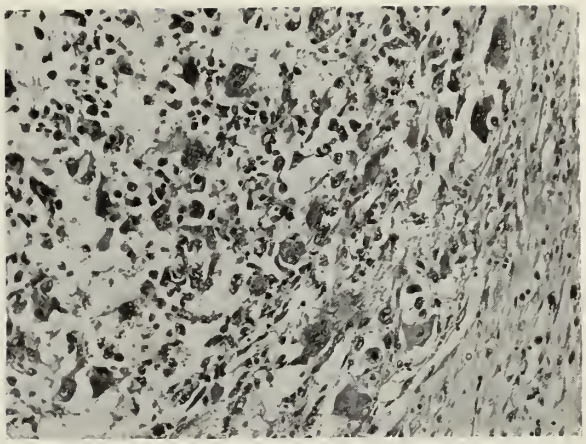


Fig. 1. Undiagnosed tumor (osteolytic osteogenic sarcoma?) of thigh.

Comment.—The diagnosis of this lesion certainly calls for a profound knowledge of pathology. It does not fit any of the common types of soft part sarcomas. The only tumors which I have encountered which remotely resemble it are a small group of osteolytic osteogenic sarcomas which closely simulate the appearance of benign giant cell tumors, the chief difference being a greatly increased mitotic rate in the tumor giant cells. This might account for the isolated groups of tumor cells and possibly the fibrous tissue in which they are set may be the result of tumor fibrosis and scarring either spontaneous or as a result of the radiotherapy. The fact that the tumor was not connected with bone does not seem to me to be any insuperable bar for osteogenic sarcomas of the soft parts are well recognized and have been described by Wilson. We have records of several such cases the majority of which have been associated with other types of malignant mesoblastic cell forms. This whole group I have classified together under the name mesenchymoma.

If it is not this, I would next consider an aggressive form of soft part giant cell tumor or xanthoma. If the lung shadow is a metastasis, the growth must be malignant and I am not acquainted from personal experience or reading with any soft part giant cell tumor or xanthoma which demonstrated true malignancy. It is, I suppose, conceivable but I should not care to accept that explanation in this case without more documentation such as examination of the primary tumor and the metastasis.

I reject the possibility that these cells are of endothelial or synovial origin because the formations are unlike any tumors featuring tumor cells of those types which I have seen or read about.

Rhabdomyosarcomas and liposarcomas are both tumors in which giant cells are formed but again the formations in this tumor are quite unlike proved cases of these tumors.

In summary then, I feel unable to make a definitive diagnosis in this case but suggest that possibly it may be an osteolytic form of osteogenic sarcoma of the soft parts.

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DISCUSSION

A. O. Severance, M.D., San Antonio, Texas: I would like to present an alternative diagnosis and let Dr. Stout bat it down. It occurred to me, as I studied this tumor, there were in addition to these giant cells, groups of tumor-like cells which I thought were forming vascular channels or blood vessels. I wondered if this could signify a malignant hemangioma.

Dr. Stout: I can only say that I did not recognize vascular formation as an essential feature of the tumor itself. I can also say that I have never recognized a malignant hemangio-endothelioma that looked like this.

Dr. Ackerman: Did you find any osteoid?

Dr. Stout: I looked with great attention to see if I could identify any osteoid but I could not, but that does not necessarily invalidate the diagnosis. What diagnosis did you make?

Dr. Ackerman: I entertained the second diagnosis because of the association of the tumor with tendon sheath and the presence of giant cells. But not having found any case in the literature, I realized that a malignant tumor of this character arising from tendon sheath must be rare.

Dr. Gray: Is the metastasis pretty definite?

Gene Bricker, M.D., St. Louis: By x-ray. This man had a large shadow in his chest which was diagnosed roentgenographically as a metastatic lesion.

Dr. Stout: Is he sick, cachectic?

Dr. Bricker: No, he left the hospital in fairly good condition.

Dr. Stout: Would anyone else make any other diagnosis in this case?

Dr. Gray: I felt it was a recurrent giant cell tumor in the tendon sheath. I did not think it was malignant in spite of the metastatic lesion.

Dr. Stout: This was a rather large tumor?

Dr. Bricker: It was a tremendous tumor. The man refused amputation; otherwise he would have been treated by amputation.

Dr. Stout: Have you ever seen a benign recurrent giant cell tumor as large as that, Dr. Gray?

Dr. Gray: Yes, I have seen some. Each time they took out several pounds of tumor tissue.

Dr. Stout: Would you not be surprised, though, if that is a metastasis?

Dr. Gray: If it is, then you are right.

Dr. Stout: We will not have solved this problem until the metastasis can be examined and the tumor is kind enough to form osteoid in the metastasis. In studying the soft parts, I have gradually learned things about extra-osseous osteolytic osteogenic sarcomas. The primary lesion may show no evidence of osteoid but the metastases may show osteoid. I have learned to believe that the so-called malignant giant cell tumors of bone are not giant cell tumors at all but simply osteolytic osteogenic sarcomas masquerading as malignant giant cell tumors.

A. S. Giordano, M.D., Indiana: Would you advise amputation?

Dr. Stout: I would answer, "no." I do not suggest radical treatment unless I know how a tumor is inclined to develop. I am not influenced by the morphology (even when there is evidence of rapid growth) into advising such a radical procedure as amputation. I consider this case an undiagnosed tumor of the thigh. Whenever I am unable to arrive at a definite diagnosis I always say undiagnosed tumor, but in the body of the report, I discuss the various possibilities.

LIPOSARCOMA OF THIGH

History (presented by Henry Allen, M.D., St. Louis).—Four weeks prior to admission, the patient, a 66 year old female, noted a large mass in the upper inner area of the left thigh. This had grown progressively until at the time of admission it measured 15 cm. It did not appear to be attached to the skin or underlying bone, and there were no palpable regional lymph nodes. At operation, the mass appeared deep to the fascia lata. It was not attached to the bone. On section it was grayish-white in appearance, quite firm, showed some poorly-defined nodules, and appeared to be encapsulated except for one portion which was attached to the hamstring muscles. It was necessary to resect a portion of these muscles to remove the tumor adequately.

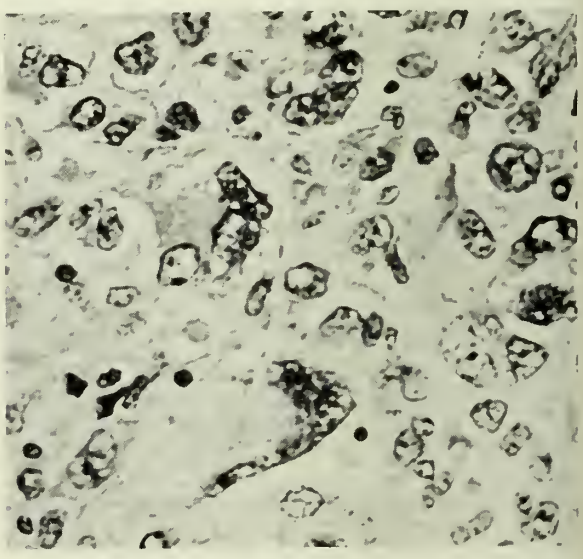


Fig. 1. Liposarcoma of thigh.

Arthur Purdy Stout, M.D.: Microscopic Description. The sections show a tumor made up of cells which are packed in together in very large masses supported sometimes by an insignificant fibrous framework and sometimes by a very generous amount of connective tissue. The cells are relatively large, rounded or polygonal for the most part in some sections, but in others the majority are spindle shaped. They have a generous amount of cytoplasm which is not infrequently vacuolated and a fat stain shows that many cells contain lipoid in fine droplets. Multinucleated giant cells are frequent many of them of a most bizarre aspect and in some the gigantic nuclei are pyknotic. In areas of greatest fibrosis, degeneration and sometimes necrosis have occurred. In these areas tumor cells are sometimes found as units surrounded by collagen.

Comment.—This tumor seems to me to be quite characteristic of one of the malignant forms of liposarcoma. I have divided these tumors according to their histologic appearance into three groups. In the first the growth is myxoid and slimy

and shows areas resembling ordinary embryonal yellow fat. If the tumor remains well differentiated throughout we have found that it does not metastasize, although it frequently recurs following incomplete removal. If there are bizarre cells and the differentiation is poor, the tumor may metastasize and is truly malignant. In the second group, the cells are rounded, and there is no mucin—this variety resembles embryonal brown fat and is also definitely malignant. Both of these groups may have areas in which the cells assume a spindle shape and may imitate the appearance of a fibrosarcoma. A third group is composed of those tumors which show a combination of the elements of the first two groups and is also a fully malignant neoplasm. The case presented here has no myxoid elements and I would classify it in the round cell group with much spindle cell metaplasia. Diagnosis is usually not difficult from histologic preparations. These tumors also grow very characteristically in vitro and if available this method of diagnosis can also be used.

Liposarcoma is the second most common of the soft part sarcomas. Indeed if one wishes to exclude from the fibrosarcoma group all of the well differentiated cases then it is, in our experience, the most common of all the truly malignant soft part sarcomas. It is most frequently found in the thigh and retroperitoneal regions. It is a tumor more common in the later years of life. Sixty per cent of our cases were past 40 years when the tumor was first observed and the mean age was 53 years. It can be found in childhood but this is rare. Liposarcomas generally form very bulky tumors and sensational weights have been recorded up to 69 pounds. The heaviest tumor ever recorded was reported by Delamater in 1859—it was a retroperitoneal lipoma which he reckoned weighed 275 pounds and which three years before death actually weighed 179 pounds. If one excludes the cases of differentiated myxoid liposarcomas which do not metastasize, metastases are found in about 40 per cent of the malignant forms of liposarcoma. As Ackerman and Wheeler have pointed out there may be found multiple liposarcomas arising independently in different parts of the body. Small liposarcomatous nodules 4 cm. or less in diameter may be successfully controlled by radiotherapy but there has been no success with larger tumors. Our practice in treatment has been to biopsy the lesion and, if it is in a situation where amputation is possible we advise this procedure. If it is impossible or refused, the widest possible excision is practiced but this rarely will succeed for these tumors are notorious for furtive spread far beyond their palpable extent.

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DISCUSSION

DR. STOUT: I would be interested to learn what other diagnosis than liposarcoma was made in this case.

DR. GRAY: I called it rhabdomyosarcoma. We thought we saw some striations.

DR. STOUT: Did you have the lipoid stain or was not that available?

DR. ACKERMAN: It was not available.

DR. STOUT: I might say that in the interpretation of lipoid stains of tumors, one has to be careful to differentiate between the fat of disintegrating fat cells and the fat of lipoblasts. I think that the fat of lipoblasts is found in well preserved cells which do not show any evidence of degeneration. They can be spindle in shape, signet ring, or even giant cells. The giant cells seen in liposarcomas are degenerating forms, for they rather quickly disintegrate in tissue culture.

HODGKIN'S DISEASE

History (presented by Lauren V. Ackerman, M.D., Columbia).—This 34 year old male was admitted to the hospital in March 1942. In July 1941, he first noted a swollen area on the left side of the neck, which grew slowly and painlessly. Physical examination revealed a well-developed, well-nourished male. Just below the angle of the mandible was a firm mass of lymph nodes which measured 10 by 6 cm. A biopsy was taken of one of these nodes. There was no lymphadenopathy, and the spleen was not palpable. A roentgenogram of the chest was negative. The patient was given intensive radiotherapy to the left neck and mediastinum in March of 1942. He was without symptoms until May 1946, at which time he had lost 17 pounds of weight, complained of fever, and the spleen was palpable four fingerbreadths below the costal margin. He had no superficial lymphadenopathy. He did have a rather profound secondary anemia. At exploratory laparotomy, he had a biopsy of the spleen. He was given further roentgentherapy, but remains in very poor general condition.

ARTHUR PURDY STOUT, M.D.: Microscopic Description.—The *lymph node* shows a complete loss of architecture. The picture is dominated by universally disseminated small tubercle-like collections of reticulum cells without central necrosis. Between these are found thin collections of lymphocytes. On closer inspection it is possible to recognize among these lymphocytes many eosinophilic leucocytes and rarely a few isolated bizarre enlarged reticulum cells with 2 or 3 hyperchromatic nuclei closely clumped together. There is little evidence of fibro-

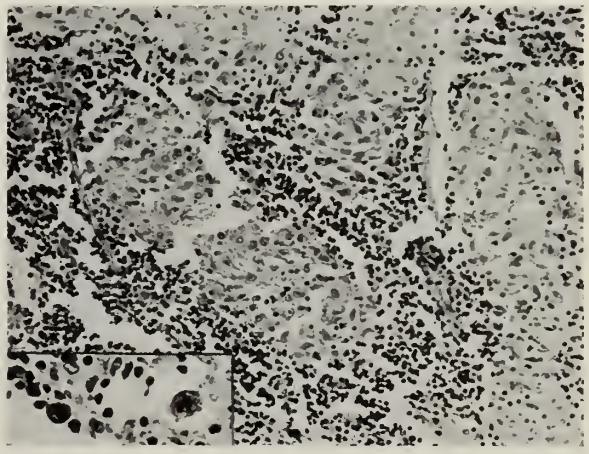


Fig. 1. Hodgkin's disease of cervical lymph node showing the sarcoid-like collections of reticulum cells. The inset shows a magnification of a Reed-Sternberg cell found among the lymphocytes.

sis. The *spleen* biopsy shows a complete absence of Malpighian corpuscles, a thickened fibrous capsule, a pulp showing almost no lymphocytes, marked fibrosis in one of the pieces, many leucocytes including eosinophiles and very rarely a small multinucleate giant cell.

Comment.—This case is of very great interest from the point of view of the pathologic diagnosis of the biopsied lymph node. This shows the tubercle-like lesions without giant cells or central necrosis which suggest the appearance of sarcoid. These so dominate the picture that it is only after careful inspection with higher powers that one appreciates the presence of Reed cells and eosinophiles which permit the diagnosis of Hodgkin's disease which is confirmed by the later section of the spleen.

In regard to the stage of the disease, if one follows Jackson and Parker, the lymph node should be classified as the paragranulomatous stage of Hodgkin's disease while the involvement of the spleen indicates that the disease has progressed to the granulomatous stage. It is of considerable interest that Jackson and Parker have pointed out that focal collections of reticulum cells occurred in some of their cases of Hodgkin's granuloma.

The same authors state that as long as the disease remains in the paragranulomatous stage involvement of the internal organs appears to be rare. In two of their cases the spleen became involved and both patients died at home of unknown causes. They regard progressive enlargement of the spleen in cases of Hodgkin's paragranuloma as an ominous sign.

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DISCUSSION

Dr. Stout: I would be interested to know how many people made the diagnosis of Hodgkin's disease from the first slide. Lots of you did. Good! Dr. Ackerman did too. I muffed it at first. I overlooked what I should have paid attention to. Incidentally, we are not willing to make a diagnosis of Hodgkin's unless we find cells that satisfy us as Reed-Sternberg cells. We see cases occasionally which look clinically like Hodgkin's disease but we have been unable to confirm the diagnosis because that element was not present in the lymph node.

Leo Lowbeer, M.D., Tulsa, Oklahoma: Did you consider the diagnosis of brucellosis?

Dr. Stout: The question asked is whether one should consider the diagnosis of brucellosis from the appearance of the first lymph node because of the resemblance to experimental brucellosis. I have seen very few cases of human brucellosis in lymph nodes and I feel very humble in arriving at that diagnosis in histologic preparations. We are at present conducting an investigation, trying to find out the nature of the disease process in cases where we have made a probable or absolute diagnosis of sarcoid of lymph nodes. I am sure that a great many of the cases called sarcoid, are not sarcoid. I wish there were accurate reliable histologic criteria for making that diagnosis.

MULTIPLE MYELOMA (PLASMA CELL TYPE) WITH EARLY MANIFESTATION IN THE GUM OF THE MANDIBLE

History (presented by Lauren V. Ackerman, M.D., Columbia).—The patient was a male, aged 72, who entered the hospital in July 1944, complaining of a lump in the jaw of four months' duration. He had noted a small nontender, slowly growing pimple on the lower right gum which one month previous to admission caused an external swelling of the lower jaw. This lesion had never ulcerated or caused any hemorrhage. On physical examination, just to the left of the midline on the lower alveolus there was a raised, firm, bluish-red, non-ulcerated, slightly cystic lesion 2.5 by 2 by 2 cm. The only other significant finding on physical examination was an enlarged right testicle. It was hard, non-tender, 1.5 times normal size, and contained an apparent hydrocele. In the region of the external ring on the right there was a hard, non-tender mass 6 by 4 by 5 cm. The patient stated that this mass had been present for five to six months. Roentgenograms revealed numerous osteolytic lesions of the mandible, skull, and ribs. The serum proteins were elevated to 11.5, with a globulin of 8.6. Bence-Jones protein was negative. The patient died of dissemination of the disease in September 1944, approximately two months after his first clinic visit.

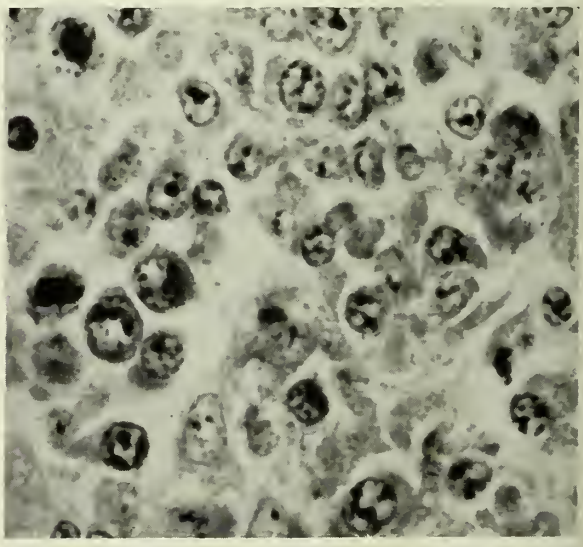


Fig. 1. Multiple myeloma (plasma cell type) involving mandible.

Arthur Purdy Stout, M.D.: Microscopic Description.—Microscopic examination shows a nodule partly covered with mucous membrane and made up of an almost solid mass of plasma cells. A number of these are multinucleate, some are bizarre and there is a high mitotic rate averaging 3 or 4 mitoses in every high power field.

Comment.—Plasma cell granulomas are not very infrequent in the oral and nasal cavities, the aural mucosa and conjunctivae. It is sometimes difficult to be sure whether one is dealing with a harmless granuloma or a malignant plasmocytoma. In this instance there can be little question for the plasma cells are often bizarre and show a high mitotic rate which so far as I am aware is never seen in simple plasma cell granulomas. Not all of the extramedul-

lary plasma cell tumors develop characteristic bone lesions although many do so. Tennent reports that when the medullary lesions are limited to a solitary one, progress of the disease is much slower than when there are more than one. This is also the case when the first lesion is extramedullary. In Hellwig's review of 128 extramedullary plasma cell tumors the distribution was as follows: air passages 63; conjunctiva 47; lymph nodes 4; and 13 other sporadic cases originating in the pleura, mediastinum, spermatic cord, thyroid, ovary, intestines, kidney, skin and mouth. In addition to a number of cases of the upper alimentary and respiratory tracts, conjunctiva and auditory canal, I have studied one lymph node case and four others involving the gastrointestinal tract. Those involving the gastrointestinal tract have generally produced multiple stenosing lesions, with superficial ulceration. In plasma cell infiltrations the remote possibility of plasma cell leukemia has to be kept in mind. It would not be likely, however, to find a solitary nodule without other signs. In this case there was more than one lesion and one must regard this gum lesion as merely the external manifestation of a multiple myeloma involving the mandible.

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DISCUSSION

DR. STOUT: I would like to ask if anybody here has ever seen a malignant plasma cell tumor, plasmacytoma arising in the skin. The nearest approach that I have seen to that was one arising at the anus.

No audience member signified that he had done so.

ADAMANTINOMA OF MANDIBLE

History (Presented by Lauren V. Ackerman, M.D., Columbia).—This 71 year old female was first seen in the hospital in July 1946. Approximately thirty-five years before admission she developed a growth in the outer aspect of the lower alveolar ridge which, on examination, measured 13 by 10 cm., involved the midline of the mandible from one angle to the other, and the submaxillary region down to the level of the hyoid bone. In the mouth, the mass could be felt in the floor. It was superficially ulcerated and seemed to have displaced the tongue posteriorly. A biopsy was taken through the oral cavity.

ARTHUR PURDY STOUT, M.D.: *Microscopic Description* (Fig. 1).—Sections show only small fragments of tumor tissue. This is made up of sinuous rows of short cylindrical cells which often surround a loose textured tissue having the characteristics of the stellate reticulum of the enamel organ. In a number of places the epithelial cells have multiplied and surround small cavities containing mucus. These adenomatous areas have a vague resemblance to the rosettes of cylindromatous carcinomas. The cells of the stellate reticulum sometimes have become swollen and flattened so that they suggest squamous metaplasia.



Fig. 1. Adamantinoma of mandible.

Comment.—The rows of ameloblasts surrounding a stellate reticulum are quite characteristic of the odontoblastic tumor variously called adamantinoma, ameloblastoma, and adamantoblastoma. The presence of the epithelial-lined rosettes filled with mucus indicates that the tumor belongs to the uncommon adenoid variant of this neoplasm. Thoma and Goldman suggest with reason that the oral epithelium has potentialities for the formation of glandular as well as dental structures so that one need not be surprised to find both in the same tumor. So far as I am aware, the glandular adamantinomas are no more malignant than other varieties. At the Laboratory of Surgical Pathology of Columbia University there are recorded sixty-three cases of adamantinoma, fifty-eight in the mandible and five in the maxilla. We do not have proof of metastases from any of these. There is a small number of cases in the literature which are known to have metastasized to the lungs and the regional nodes but this is such a rare event that one can afford to ignore it in planning treatment.

These tumors grow slowly as a rule but sometimes exhibit sudden increases in rapidity which may be alarming. It is quite possible that the present tumor has been in existence for thirty-five years. In a case reported by Frantz and Stix the total duration was fifty-one years. This included resection of the mandible with immediate recurrence, the tumor finally reaching a size of 11 by 13 by 14 cm. and a weight of almost a kilo. The patient was not much discommoded by the tumor and at a partial autopsy no metastases were found. The greatest difficulty in the treatment of these tumors arises when, as in this case, the tissues outside of the mandible are involved or the symphysis of the mandible is invaded. Such cases in our clinic have been dealt with in so many different ways that it seems impossible to select any one form which can be applied to all. Our experience with radiotherapy likewise has been very variable but the best that has been achieved has been a slowing of growth but not complete destruction of the tumor.

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Frantz, V. K., and Stix, L.: Adamanatinoma, Arch. Surg. 25:890, 1932.
Thoma, K. H., and Goldman, H. M.: Odontogenic Tumors, Am. J. Path. 22:433, 1946.

DISCUSSION

Dr. Stout: I would like to ask Dr. Regato if he has had any success in treating these cases with radiotherapy.

Juan del Regato, M.D., Columbia: I am convinced that ameloblastomas can be successfully treated by means of roentgentherapy but, of course, any appraisal of results depends on the long control of the cases treated; consequently, recent experiences cannot be counted. I do, however, know of a patient who had ameloblastoma of the mandible which I treated with Coutard twelve years ago and who remains well.

Dr. Stout: I would like to ask one other thing. Has anyone here seen a proved metastasis of one of these tumors?

R. A. Moore, M.D., St. Louis: We had one case at Barnes Hospital, reported by Schweitzer, in which the patient had twenty-six operations. At autopsy the tumor had invaded up into the bones of the skull. Numerous metastases to the lungs were sharply circumscribed, firm, nodular. Of course, there are two possibilities: one, that the metastases were aerial from the ulcerating lesion in the oral cavity, and the other that the metastases were vascular. I thing the possibility must be entertained that these were aerial rather than vascular metastases.

Wm. R. Platte, M.D., Louisville, Ky.: How can the adamantinomas of the tibia be explained?

Dr. Stout: Attempts to explain these have seemed very fantastic. I have seen some slides of those reported cases and they certainly looked like adamantinomas.

OSTEOGENIC SARCOMA OF THE MANDIBLE

History (presented by Lauren V. Ackerman, M.D., Columbia)—One month previous to admission, this patient noted a swelling inside the mouth in the lower left jaw between the gum and cheek, which displaced the lower teeth. On examination, there was a faintly visible swelling on the left mandible opposite the molar area, behind the second cuspid. Several teeth had been removed and the gum had not yet healed. On the medial aspect of the mandible, slightly behind the swelling, was a rubbery-firm mass. Roentgen ray of the left mandible showed a destructive lesion with soft-tissue tumefaction. This patient had partial resection of the mandible in May 1942. The tumor recurred in April 1943, and the entire remaining portion of mandible was resected. Pain in the back developed, and roentgenograms in June revealed an osteolytic process in the first lumbar vertebra. The patient died of dissemination of her disease in August 1944.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The section shows a nodule with a small amount of gum mucosa surmounting it. It consists of loose-textured tissue containing many spindle, stellate and ribbon cells as well as a few small giant cells. In a number of areas a rather poorly developed osteoid has been formed which occasionally shows calcification. Some of the cells in the lacunae of the osteoid are bizarre and a moderate number of tumor cells show mitoses.

Comment.—This formation of a nodule of tumor outside of a bone in which there is roentgen-ray

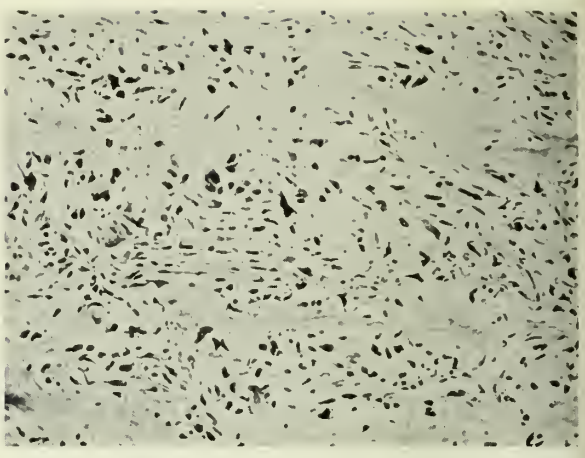


Fig. 1. Osteogenic sarcoma of mandible.

evidence of destruction with the described histopathologic characteristics can be interpreted only one way: it must be an osteogenic sarcoma. The anaplasia of the cells with mitotic activity and the bizarre osteoid are the important features which distinguish the lesion from all of the benign forms of epulis. It is, I believe, a somewhat common way for osteogenic sarcoma of the mandible to behave. In any event, at least half of our mandible cases of osteogenic sarcoma have perforated the bone and grown up to form fungating lesions which were not controlled by radiotherapy and some of them needed repeated cautery removals of rapidly fungating masses before they succumbed. In the Laboratory of Surgical Pathology at Columbia University there are records of twelve osteogenic sarcomas of the mandible and four of the maxilla. The ages have varied from 6 to 70 years with only a slightly greater number in the younger group. Two cases appeared to have developed in preceding osteitis fibrosa, one in a mandible affected by osteitis deformans and one developed in an osteoma of the maxilla. The diagnosis is sometimes more difficult than in this present case when the malignant fungating tissue shows no recognizable osteoid or simulates a giant cell tumor. One must then suspect a malignant tumor by searching for bizarre anaplastic cells and frequent mitoses and they may not be at all easy to recognize. We follow the general plan of dividing osteogenic sarcomas roughly into two groups, sclerosing and osteolytic, although sometimes this may be difficult to do if both varieties of growth are present in the same tumor. If there is any chondroblastic tissue present the tumor is classified as a chondrosarcoma even if it also forms atypical osteoid. The osteogenic sarcoma is, of course, an exceedingly malignant tumor and most of our cases have died with blood borne metastases. Two cases have had a long survival—one osteosclerotic tumor which grew in the maxilla of a 6 year old Negro boy. The maxilla was resected and there had been no recurrence after eight years. The other was an osteolytic lesion in the mandible of a 27 year old woman which developed in one

side of a bilateral osteitis fibrosa. She remains well twenty-one years following resection of the mandible. Both of these cases had unusual features and were different from the more obvious cases of osteogenic sarcoma which are probably almost invariably fatal no matter what the form of treatment used.

DISCUSSION

DR. STOUT: I would like some more information from Dr. Regato. Have you had any success in treating osteogenic sarcoma with radiotherapy?

DR. REGATO: There was a case in this hospital which is perhaps worth relating because of its interesting sidelights. It was a case of a 19 year old boy with an extensive tumor of the lower jaw which on biopsy was diagnosed as possible osteogenic sarcoma. Because surgery could not be contemplated, it was suggested that he be given roentgentherapy with an aim of psychotherapy. The tumor showed marked radiosensitivity and because of this, the treatment was carried to full dosage. The palliative result was immediate, and the mandible later became recalcified. The patient has now gone about two years without evidence of recurrence. In view of the favorable result, however, we are now contemplating changing the pathologic diagnosis to Ewing's sarcoma.

DR. ACKERMAN: Dr. Stout did not state definitely whether it was osteogenic sarcoma or Ewing's sarcoma, but after he found out that it responded to radiotherapy, he did side with the diagnosis of Ewing's sarcoma; so, naturally, I agreed with him.

DR. STOUT: Have you found any cases of osteogenic sarcoma that responded to radiotherapy?

DR. REGATO: No, we have not.

DR. STOUT: I think that must be pretty generally the case and it is one of the most distressing features of these tumors. When they form rapid fungating masses in the oral cavity. the patients are extremely unhappy. They have foul breaths and foul discharge. I have tried palliation by cautery removal in order to give temporary relief. Incidentally, while on the subject of bone lesions, I would like to bring up the question of palliative treatment which does not apply, necessarily, only to primary bone tumors but to metastases in other parts of the body. On occasion, a malignant neoplasm will form a solitary metastasis, and repeated exploration of the skeletal system and other parts of the body fails to show any other metastasis. Under these circumstances, we have felt that it was a very good form of treatment to remove the metastasis, even if it meant amputation of an extremity. I will give you examples in which we did the amputation and in which we did not pursue any radical form of treatment. In one case a woman had plasmocytoma of the nasopharynx. After several recurrences, the tumor was successfully controlled with radiotherapy by Dr. Lenz. About three years later, a pathologic fracture of the upper end of the femur occurred. The patient was in her late sixties and became bedridden. Roentgenograms of the skeleton showed no other metastasis. It was felt that she might be more comfortable if an amputation were carried out, and the patient lived for two and one half more years with a fairly comfortable existence before dying. We have done similar operations under various other circumstances for other kinds of tumors. Now for an example in which a radical procedure was done: a man in his forties had a tumor of the mandible which, on biopsy, was recognized as a metastatic carcinoma, and after considerable investigation, the primary site was located in the lung. It was determined to do nothing for him because of the hopelessness of the case. The metastasis in the mandible remained a solitary one but grew to enormous size and his life was one of misery and pain. We always regretted bitterly that when the diagnosis was originally made we did not resect the mandible and the metastasis, for we probably could have spared him a great deal of terminal discomfort. What do you think of that, Dr. Bricker?

DR. BRICKER: I am greatly in favor of palliative surgery, not only for lesions about the face but for malignant lesions elsewhere, particularly in the abdomen involving the large bowel.

DR. STOUT: Have you ever seen amputations done under those circumstances?

DR. BRICKER: A few, but my experience has not been great.

GLOMUS TUMOR OF THE ELBOW

History (presented by Lauren V. Ackerman, M.D., Columbia).—The patient, an 82-year-old male, complained of a painful lump in the region of the elbow of over fifteen years' duration. It had been painful to touch, and local pain occurred when he hit it against any object. The tumor mass measured 2 by 1 by 0.5 cm., was well encapsulated, and fairly firm. This tumor was excised in October of 1941. There have been no symptoms since that time.

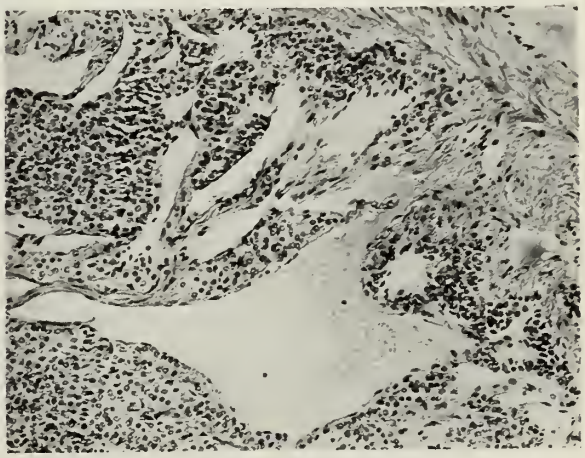


Fig. 1. Glomus tumor of elbow region. The photomicrograph shows the junction of the glomus vessels and their pericytes with veins at the upper right.

ARTHUR PURDY STOUT, M.D.: *Microscopic Description* (fig. 1).—The section shows an encapsulated tumor which is made up of many endothelial-lined tubes of all sizes, some of which contain red blood cells. Most of them are surrounded by rounded cells with sharply defined nuclei and scanty cytoplasm varying from neutrophilic to acidophilic. These cells are sometimes closely packed and sometimes very loosely arranged in a myxoid stroma. In the capsule is a large thickly muscled vein. Branches from this communicate with the tumor vessels and at points smooth muscle and tumor cells are intermingled. In the capsule elsewhere are many other smaller vessels and a considerable number of nerve twigs.

Comment.—This is a very characteristic glomus tumor of the type commonly found away from the nail bed. This means that the vessels are larger and much more prominent. As usual the tumor caused pain. The rounded cells often referred to as epithelioid cells are known to be pericytes. These are cells found sparsely distributed over the surface of capillaries. Instead of being rounded they have very

long branched processes which when contracted narrow the lumens and when relaxed permit them to dilate. The identification of the tumor cells as pericytes by means of tissue culture explains the occurrence of glomus tumors away from the fingers and toes where glomuses have never been found. We now have fifty cases on record in the Laboratory of Surgical Pathology of Columbia University. These tumors have been found in many parts of the body but most commonly in the subungual spaces of the fingers. Usually they involve the cutaneous-subcutaneous junction, but deeper tumors have been found in the extremities and on the trunk including muscles, joint capsules and even buried entirely within the terminal phalanx. They have not been described in the organs, thorax, abdomen or central nervous system. Ordinarily they are encapsulated tumors but we have studied one subungual case characterized by severe and paroxysmal pain in which many of the normal glomuses had become hyperplastic and microscopically enlarged although grossly there was no evidence of a tumor to be found. However, vascular tumors resembling them in the relationship of pericytes to vessel walls but without the organoid arrangement of the glomus have been described in many parts of the body. These tumors are not painful, they infiltrate and on rare occasions they can metastasize. The writer has conceived of all of these vascular tumors which feature the pericytes as forming a single group and he has proposed to call them hemangiopericytomas. The glomus tumors then are a highly organized and specialized form of hemangiopericytoma furnished with large numbers of nerves and characterized by a close association with the sympathetic nervous system and by tenderness and pain which is often paroxysmal. Glomus tumors are always benign. The nonspecialized form of hemangiopericytoma is characterized by absence of pain, infiltrative growth, which can become aggressive and destructive, and rarely by metastasis. In the Surgical Pathology Laboratory of Columbia University we have now collected forty-seven cases of hemangiopericytoma of which two are known to have metastasized. They have involved organs, deep structures and the central nervous system as well as the surface of the body.

Murray, M. R., and Stout, A. P.: The glomus tumor, Am. J. Path. **18**:183, 1942.
Stout, A. P., and Murray, M. R.: Hemangiopericytoma. Ann. Surg. **116**:26, 1942.
Stout, A. P.: Tumors of blood vessels, Texas State J. Med. **40**:362, 1944.

DISCUSSION

Dr. Stout: I would be interested to know how many people made the diagnosis of glomus tumor in this case? Most of you? What other diagnoses were made?

Dr. Severance: I called it a sweat gland tumor.

Dr. Stout: Too deep. I made that diagnosis several years ago when I was not as enthusiastic about glomus tumors. I have also done the reverse and called a sweat gland a glomus.

Dr. Rabson: Are glomus bodies encountered elsewhere? Recently I found glomus bodies at autopsy and was quite struck by their presence.

Dr. Stout: In what area did you find them?

Dr. Rabson: Pericardium.

Dr. Stout: These glomus tumors with their paroxysmal pain are always trying to the surgeon. However, all he has to do is remove the tumor and pain stops instantly. We were very much chagrined to encounter recently a woman with hyperplasia of the glomuses in the subungual region. Removal of part of the nail bed has not cured her.

LEIOMYOSARCOMA OF ARM

History (presented by Lauren V. Ackerman, M.D., Columbia.)—This negro female entered the hospital because of a swelling of the left elbow. It had persisted and gradually enlarged over a period of two years, and was associated with slight pain localized to the mass, and tingling referred to the shoulder and down to the hand. Examination revealed a 5 by 3 by 3 cm. mass located on the medial surface of the arm just above the elbow. It was not fixed to the skin, and was freely movable over the deep structures. The mass was excised, weighed 20 grams, appeared to be intimately connected with the ulnal nerve and, on section, had a glistening gray, homogeneous appearance. Regional lymph nodes were not enlarged. The tumor was excised July 1941. There was no evidence of recurrence until July 1946. At that time the area of previous excision was free of tumor but there was a large metastatic mass in the left axilla and nodular masses within the liver. Roentgenograms of the chest revealed extensive metastases throughout both lung fields. An aspiration biopsy of the left axillary mass revealed tumor similar to that observed in the primary excision. When last seen in August 1946, she was obviously in the last stages of her disease.

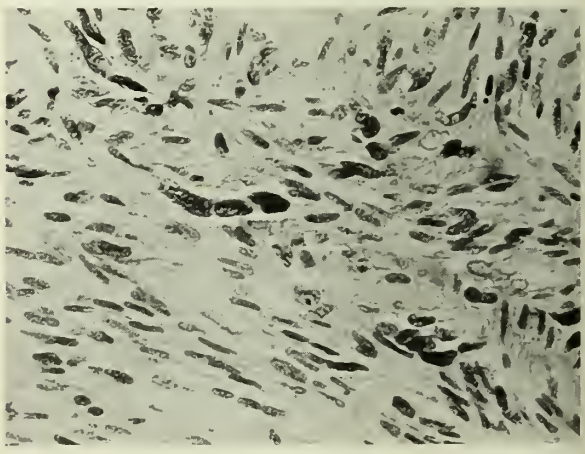
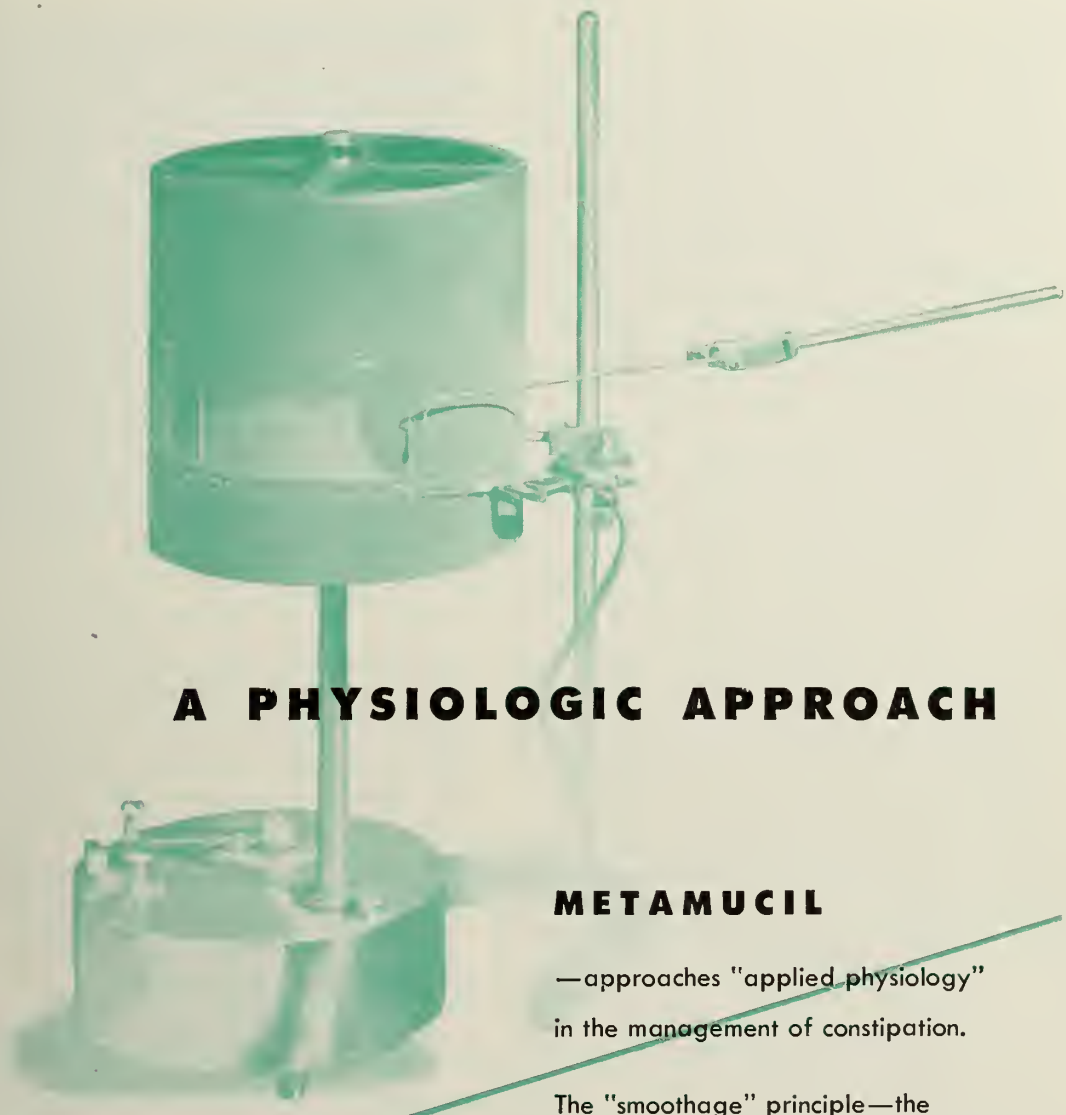


Fig. 1. Leiomyosarcoma of arm.

Arthur Purdy Stout, M.D.: *Microscopic Description* (Fig. 1).—Sections show a tumor made up of spindle shaped cells arranged in interlacing bundles accompanied by long wiry connective tissue fibers. The cells have blunt-ended nuclei and broken intracellular acidophilic fibrils. They vary greatly in relative size often becoming gigantic. Mitoses average one in every three high power fields. In some areas they are much more frequent.

Comment.—The diagnosis of smooth muscle tumor can be made with some degree of assurance here because of the intracellular fibrils, the blunt ended nuclei and the generally characteristic morphology. The presence of intracellular fibrils rules out the possibility of Schwann cell tumor since the



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RESEARCH IN THE SERVICE OF MEDICINE

Schwannian syncytium never shows intracellular fibrils.

Leiomyosarcoma is not a common tumor of the soft parts and there exists but little information regarding it. The material in the Laboratory of Surgical Pathology at Columbia University consists of thirteen cases excluding the present case and of these, nine were retroperitoneal. Since it is extremely difficult to achieve complete surgical removal of retroperitoneal tumors it is not surprising to learn that of the ten followed cases there were nine recurrences following operation and eight deaths attributable to tumor growth. However, only three of the cases metastasized which suggests that if the tumor occurs in a region amenable to wide excision most cases are potentially curable.

The criterion for judging the relative malignancy of smooth muscle tumors of the uterus originally proposed by Evans, namely, a high mitotic figure rate. has in general stood the test of time and seemingly is also applicable to smooth muscle tumors outside of the uterus. However, one must always bear in mind the fact that on rare occasions what appears to be a histologically well differentiated leiomyoma may metastasize. This fact has long been known (Jacquin, lit.) and was exemplified by one of our retroperitoneal tumors which in spite of its differentiated appearance of a simple leiomyoma, metastasized to the liver. It is very difficult to know whether or not circumscribed partly differentiated smooth muscle tumors showing palisading of the nuclei and perhaps bizarre giant cells with huge pyknotic nuclei, but with only rare or not any mitoses, should be classified as leiomyosarcomas—a word connoting malignancy. Wheelock and Warren feel very strongly that they should be so called but would add the words "clinically benign" to the diagnosis. Provided one does not forget to use the qualifying phrase no harm may result such as an unnecessary hysterectomy. But it is very questionable in my mind if the term "sarcoma" which connotes malignancy should be applied to a clinically benign tumor.

However, whether one calls these growths bizarre leiomyomas or benign leiomyosarcomas it is important to recognize that those tumors which have rare or no mitoses are clinically benign. In the present case the relatively high mitotic rate of the primary growth gave ample justification for the use of the term leiomyosarcoma which the clinical course has confirmed.

This case also calls for some comment upon the fact that the tumor was found at operation to be associated intimately with the ulnar nerve which might tempt one to classify it as a so-called "neurogenic tumor." Ample evidence here exists for the diagnosis of leiomyosarcoma, so that the nerve involvement must have been secondary and due to infiltrative growth. It shows the fallacy of jumping to the conclusion that, because a nerve is surrounded by tumor tissue, it must *ipso facto* have arisen from the tissues of its sheath.

Evans, N.: Malignant Myomata and Related Tumors of the Uterus, Surg. Gynec. & Obst. **30**:225, 1920.

Golden, T., and Stout, A. P.: Smooth Muscle Tumors of the Gastrointestinal Tract and Retroperitoneal Tissues, Surg. Gynec. & Obst. **73**:784, 1941.

Jacquin, P.: A propos du sarcome et myome malin de l'utérus, Gynec. et Obst. **3**:90, 1921.

Stout, A. P.: Sarcomas of the Soft Parts, J. Missouri M. A. **44**:329 (May) 1947.

Wheelock, M. C. and Warren, S.: Leiomyosarcoma of the Uterus, Ann. Surg. **116**:882, 1942.

Stout, A. P.: Forum. Ann. Surg. **114**:1117, 1941.

DISCUSSION

Dr. Stout: How many people here called this leiomyosarcoma? Two! How many called it neurogenic sarcoma? A great many. In going over the sarcomas of the soft parts I have included for consideration the tumors which I thought arose from the Schwann cells of the nerve sheath. I have found only thirteen case, and we have a very fair amount of material including a considerable amount made up of tumors difficult to diagnose which reach me from various places. I would say that the majority of the malignant Schwannomas showed associated von Recklinghausen's disease.

Wm. B. Hare, M.D., Memphis, Tenn.: Is the tendency toward palisading of cells a feature of this particular tumor?

Dr. Stout: By no means. It is present in both nerve and smooth muscle tumors. Some years ago I, in company with Golden, published a study of smooth muscle tumors of the gastrointestinal tract and retroperitoneal tissues. In this article with Golden we reported three cases of Schwannomas of the stomach and made the remark that the literature showed numerous cases of Schwannomas, especially of the stomach. When a large monograph was previously published in France, devoted entirely to Schwannoma of the stomach, I fell for it. I have learned better since and have had publicly to retract those three cases because they all were smooth muscle tumors. So far as I know, benign Schwann cell tumors derived from nerve sheaths are always encapsulated. The leiomyosarcomas do not have the division in type A and type B which is present in some degree in all benign Schwannomas. I think quite a number of reported cases of Schwann cell tumors are actually smooth muscle tumors.

Henry Pinkerton, M.D., St. Louis: What special stains do you consider most desirable in Schwann cell tumors?

Dr. Stout: There is not any use in doing any special stains unless one starts out first by having good fixation. One can use formalin if one has it neutral and has it properly prepared, but if one is going to go in for special stains, one really should use a better fluid than formalin, such as Bouin's or Zenker's and then any of the fiber stains that the technicians are best able to handle can be used. If there are myofibrils present, one can demonstrate them with any of the stains. Phosphotungstic acid hematoxylin is the best stain, if one is very familiar with the handling of it. If Bouin's is used, one can use Masson's trichrome stain and some of the others; but if one is really interested in sorting these tumors out and identifying them more accurately, one must have good fixation. That is the basis of all finer pathologic study.

FIBROUS XANTHOMA (SCLEROSING HEMANGIOMA TYPE) OF LEG ASSOCIATED WITH COMEDONE

History (presented by Zola Cooper, M.D., Barnard Skin and Cancer Hospital, St. Louis.)—The patient, a male aged 30, developed a tumor on the anterior surface of the right lower leg which grew to a size of 2 by 1.5 by 1 cm. over a period of five years. It was nonulcerated, nonencapsulated, slightly purplish in appearance and, on cut section, had a slightly yellowish tinge.

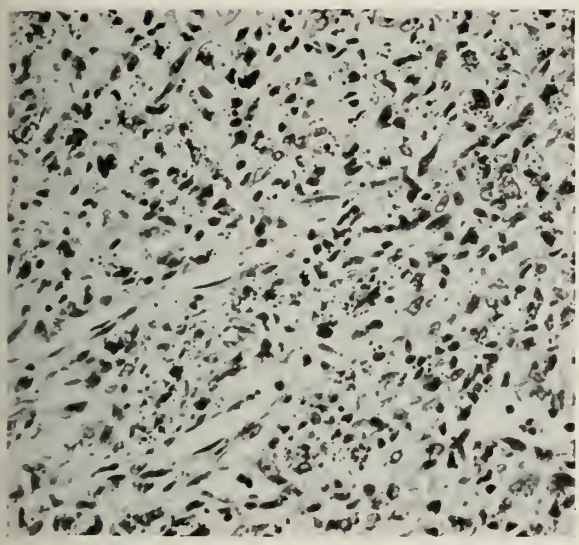


Fig. 1. Fibrous xanthoma (so-called sclerosing hemangioma type) of leg. The photomicrograph shows a vascular area with phagocytes containing hemosiderin and lipoid.

ARTHUR PURDY STOUT, M.D.: *Microscopic Description* (fig. 1).—The section shows a segment of skin and subcutaneous tissue. The epidermis is elevated by a growth composed of great numbers of phagocytes containing hemosiderin and also frequently vacuolated by what can be assumed to be lipoid. These are packed into a supporting tissue containing a large number of delicate capillaries. It extends into the subcutaneous fat and reaches up to the epidermis which is destroyed at one point where the surface is covered with fibrin. The epidermis dips downward into the lesion for a short distance. Deeper in the corium is a narrow tract plugged with squamous epithelial cells. Outside of this the growth shows some areas of degeneration with cholesterol clefts. The tumor is not encapsulated but interdigitates with the corium to a limited degree. The overlying epidermis is thickened and hyperplastic.

Comment.—This is unquestionably an excellent example of the lesion which Gross and Wolbach have chosen to call sclerosing hemangioma. Before discussing it, attention should be directed to the epithelial-lined tract buried within it which seems to be a rather elongated comedone plugged with desquamated epithelial debris. Presumably it connects with the overlying lesion of the surface where the epidermis dips downward.

These skin lesions are very varied in their appearance ranging all the way from a small scar-like fibrous nodule with hardly any capillaries, no pigment, no lipoid and no histiocytes to the lesion which we see here which is very vascular and has many phagocytes filled with hemosiderin and lipoid. In my experience most of these skin nodules lie somewhere between the two extremes and the extremely vascular ones are especially uncommon. Gross and

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Wolbach assume that all of these growths represent hemangiomas in various stages of fibrosis with the phagocyted lipoid and hemosiderin representing by-products of the process. This explanation has never satisfied me because I have never encountered sections showing a simple angioma with this process affecting only a part of the angioma. To me this section does not look like an angioma but a sort of granulomatous lesion more akin to the xanthomatous giant cell tumors of tendon sheaths than to true vascular neoplasms. I have not, therefore, used the term sclerosing hemangioma for this group of skin growths but continued to call them fibrous xanthomas. This is not a term to which I am attached except through long usage and I will be quite willing to abandon it whenever an entirely satisfactory interpretation of these growths leads me to adopt another one. The sclerosing hemangioma hypothesis does not appeal to me as adequate. Incidentally the frequency of these lesions is shown by the fact that among 2,081 tumors of the skin and subcutaneous tissues, I found 70 recorded as fibrous xanthomas.

Gross, R. E., and Wolbach, S. B.: Sclerosing Hemangiomas, Am. J. Path. **19**:533, 1943.
Stout, A. P.: The Painful Subcutaneous Tubercle (Tuberculum Dolorosum), Am. J. Cancer **36**:25, 1939.

DISCUSSION

Dr. Stout: Did everybody call this a sclerosing hemangioma?

Dr. Pinkerton: I called it a xanthoma.

Dr. Stout: Do you distinguish between this type of lesion and the xanthoma of diabetics?

Dr. Pinkerton: We make both diagnoses. I think they are very closely related and sometimes very difficult to distinguish from one another.

Dr. Gray: This tumor is very vascular.

Dr. Stout: All vascular growths are not hemangiomas.

Dr. Gray: They are pretty well circumscribed. All one sees are the vessels or fibrocytes. I am not supporting his theory but this is a case that Wolbach would call a sclerosing hemangioma.

Dr. Stout: Where do you stop calling it sclerosing hemangioma? Supposing there are hardly any vessels at all, do you continue to call it sclerosing hemangioma?

Dr Gray: We do not know what to call it.

Dr. Stout: These lesions are entirely benign and I hope that none will alarm surgeons or other therapists by any other interpretation of their clinical course.

NEURILEMOMA OF LATERAL COSTAL REGION

History (presented by Lauren V. Ackerman, M.D., Columbia).—This patient, a 28-year-old female, entered the hospital in January of 1944 because of a tender mass overlying the ninth rib in the axillary line. It had been present for several years, was just beneath the skin, tender and movable. It was excised and was fairly firm, gray on cut section and measured 6 mm. in diameter. This tumor was excised in January of 1944 and there has been no evidence of recurrence.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The section shows a rounded, probably encapsulated, tumor which is composed of an admixture of two types of tissue. One variety is composed of sinuously twisted structures the characteristics of which are that they have long slender

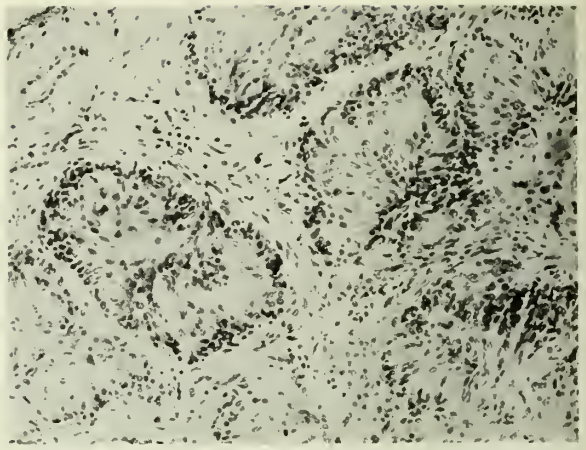


Fig. 1. Neurilemoma of lateral costal region showing Antoni type A and B tissue, Verocay bodies and (upper left) a vessel with a thick collagen sheath.

cells arranged at right angles to the curving longitudinal axis of the strand while the nuclei are oriented at the sides. The bare central portion is composed of cell bodies and long straight reticulum fibers. These striking formations are known as Verocay bodies and the solid tissue in general as Antoni type A tissue. The looser tissue in between with long slender cells, microcysts and a generally myxoid appearance is known as Antoni type B tissue. In this at irregular intervals can be found occasional capillaries with exceedingly thick collagenous sheaths about them.

Comment.—This whole picture is entirely characteristic of the specific nerve sheath tumor known under a variety of names; in Europe they are generally called neurinomas or Schwannomas, in North America the names used have included neurilemoma, Schwannoglioma and perineurial fibroblastoma. They are composed of Schwannian cells and tissue culture studies show that the reticulum fibers of the tumors are almost certainly formed from the Schwannian tumor cells and not from ordinary fibroblasts. The tumors can occur wherever nerves with Schwannian sheaths are found and are usually not associated with neurofibromatosis although, of course, they may be. When they develop from small nerve twigs as in this case, the affected nerve is hardly ever seen by the operator but when they are in larger nerves, the fibers generally spread out over the capsule. Wherever they are found they are always encapsulated which helps one to distinguish them from other tumors, especially leiomyomas which may also show some degree of nuclear palisading. When our files were last investigated about one year ago, there were records of 144 cases. None had shown any evidence of malignancy and only one, a tumor of the ulnar nerve, recurred locally after excision. This is an important fact to bear in mind for it influences the treatment of these tumors when they are found in important nerve trunks. It is felt that it is more important to dissect the small nerve bundles away from the surface of

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the tumor without injuring them than it is to make sure that the capsule has been removed intact and that in this case the tumor can be "shelled out" with impunity. The malignant nerve tumors generally extend inside of the sheath over a long distance without encapsulation or else infiltrate surrounding tissues while the benign tumors are round or ovate and encapsulated. It is uncommon for one of these tumors arising from tiny nerve twigs as in this case to be painful; usually there are no symptoms.

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DISCUSSION

Dr. Stout: I take it that everybody recognized this as a nerve sheath tumor. I would be interested to learn if anybody here knows of any tumor showing these characteristics which has become malignant. It is to me very interesting that the malignant nerve sheath tumors I have seen have, in most instances, been associated with von Recklinghausen's disease, and in no instance have developed from benign neurilemomas.

Dr. Pinkerton: I have seen a number of recurrences in the neck but these get out of hand.

Dr. Stout: I wish you would report them. The neurilemomas are almost never diagnosed clinically. I do not see how you can. When these tumors attain 6 cm. in diameter in peripheral regions of the body and an even greater diameter in the mediastinum, the Antoni type B tissue may predominate and contain a good deal of fluid so, if you can get at the tumor, it transilluminates. I have done this in a tumor in the hand but I do not believe the diagnosis can be made very often by this method.

CARCINOMA OF PAROTID SALIVARY GLAND

History (presented by Lauren V. Ackerman, M.D., Columbia).—Seven years previous to admission in May 1944, this 58 year old female had noted a lump in the region of the right parotid. This mass had enlarged gradually without pain, tenderness or limitation of motion of the mandible. On physical examination, the mass measured 5 by 4 by 2 cm., was somewhat firm and cystic. It was not attached to the skin, and there was no facial paralysis. On May 16, 1944, a total parotidectomy was performed. The tumor was excised and it was found necessary to sacrifice the facial nerve. This was followed by a plastic operation. There was no evidence of recurrence in June 1946.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The section shows a thin layer of parotid salivary tissue along one end. The rest of the tissue consists of a proliferation of anastomosing duct-like structures lined by one or more layers of cuboidal and occasionally cylindrical cells. Many of these have secreted mucus and the lumen often is filled with it. The cells have broken through the basement membranes in places and have invaded the dense fibrous stroma in which all of the epithelial structures are embedded. The tumor is invasive at its periphery but only to a limited degree and in a restrained fashion.

Comment.—This is a variety of glandular carcinoma of the salivary glands which is characterized by slow growth and a relatively low grade of malignancy. At the Presbyterian Hospital there have been two other cases of parotid tumor closely resembling this one and both of them have had a long course. The first started in a girl at the age of 19 years. After two years of growth it was biopsied, excised and the patient was given 3517.2 mgm. hours from six, 6 cm. radium needles inserted in the wound cavity. She remained free from any local recurrence until fourteen years later when tumor of similar type was found in the submaxillary salivary gland and two submaxillary lymph nodes. Seemingly this is a new tumor although one cannot be certain of this. The other patient was 17 years old when a swelling first appeared in the parotid. After 23 years of inactivity it grew rapidly for two years and then was excised at the age of 42, but has recurred twice in spite of further excision and radiotherapy and five and a half years after the first excision she remains alive with persisting tumor. In this case there was squamous metaplasia of some of the tumor cells.

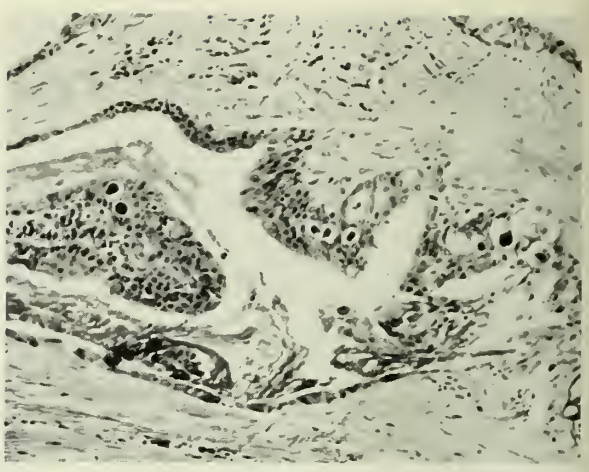


Fig. 1. Carcinoma of parotid salivary gland (so-called malignant mucoepidermoid type).

I believe that this case will probably correspond with what Stewart, Foote and Becker have chosen to call malignant mucoepidermoid tumors. I am not sure that I understand all of the variations which they have included but at least this seems to be one of them. Incidentally, I am rather loath to accept the term mucoepidermoid tumor for this group. In 1935, I pointed out the fact that some squamous cell epitheliomas of the oral cavity had the ability to form mucus-secreting cells and that these tumors were unusually radioresistant and were exceedingly difficult to cure because of insidious spread and metastasis. I should not object to the use of the term mucoepidermoid for such tumors but they seem to me to be so different both histologically and in their clinical behavior from this tumor under consideration that I think it would be confusing to use the same term for both. I think that we may agree that this present growth and the others whose histories I have recounted form a

recognizable variety of salivary gland carcinoma of a restrained degree of malignancy.

Other salivary gland carcinomas are much more malignant than these three examples although one does not always gain this impression from a perusal of the literature. The difference arises in part because of the great variation in the histopathology of salivary gland tumors and in part because of a lack of agreement as to what shall be called carcinoma. There is a variety of mixed tumor which tends to infiltrate and is more aggressive in its growth. This has been called semimalignant by Ahlbom but by others is included with the carcinomas. If this is done, then the cure rate of salivary gland carcinomas will be greatly increased, for this group hardly ever metastasizes. When this matter was investigated a year ago in the Laboratory of Surgical Pathology of Columbia University there were records of 392 mixed tumors and of these there was proof of metastasis in only two cases. This fact has led us to be conservative in our treatment of mixed tumors since failure to remove the entire growth has so seldom had fatal results. We feel that it is desirable to remove the entire growth but that it is not justifiable to compromise important structures such as the facial nerve in order to do so. In regard to the histologic varieties of mucous and salivary gland carcinoma, I have not yet succeeded in obtaining more than seventy cases for study and analysis which is too small a number when divided into sub-groups to permit one to learn much about their biologic characteristics and response to treatment. It has been possible to segregate one important group—the cylindromatous carcinomas. These are peculiarly malignant and usually fatal tumors in spite of the fact that they are radiosensitive and often progress very slowly. But there is a great variety in the rest of the carcinomas and there is little that I am prepared to say about them except that the majority are fully malignant and that occasionally they may develop in childhood and youth as well as in the later years of life. Our youngest patient was only 11 years old.

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Stewart, F. W.; Foote, F. W., and Becker, W. F.: Mucoepidermoid Tumors of Salivary Glands, Ann. Surg. 122:820, 1945.
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DISCUSSION

DR. STOUT: Did anybody call this neoplasm a mucoepidermoid tumor?

DR. PINKERTON: Yes.

DR. STOUT: It certainly conforms to the group specified by the Memorial Hospital, but I must confess I am very confused by their paper.

W. H. BAUER, M.D., St. Louis: I was impressed by the cystic features of this tumor and I saw definite malignant features. I believe strongly that there is smooth transition between these tumors and the papilloma cystoadenoma lymphomatosum.

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Dr. Stout: You would classify this tumor as arising from a preexisting papillary cystoadenoma lymphomatosum?

Dr. Bauer: Yes.

Dr. Stout: I have to disagree with you about the papillary cystoadenoma lymphomatosum. I think that one has to be prepared to find lymphoid tissue connected with cystic tumors in a certain number of cases, and the cells forming this tumor do not show the characteristic of the cells found in the papillary cystoadenoma lymphomatosum type arising from the salivary glands. I would not be willing to recognize that such a malignant change could take place in this type of tumor unless I could find a perfectly characteristic area of transition.

Dr. Ackerman: This neoplasm was sectioned through the entire tumor at various levels and no such area was present.

Dr. Stout: We have one very interesting case. An elderly woman had one of these tumors removed from the parotid gland, and about eight months later a new tumor appeared adjacent to the scar. The surgeon felt that this was a demonstration of malignancy and he removed the entire parotid gland and sacrificed the facial nerve. The second growth was exactly like the first, and my interpretation was that either a small bit of the first was left behind or that this was a second independent tumor. The patient is extremely unhappy because of the facial paralysis which involves the eyelids as well as the mouth, and you know how terribly deforming that is. We have come to regard facial paralysis as a worse disease than a mixed tumor of the parotid salivary gland. Our surgeons try to get the tumor all out without damaging the facial nerve, but if the tumor is so attached to the nerve that it cannot be taken out without damaging it, we prefer to leave the capsule behind.

Dr. Pinkerton: We recently had a bilateral parotid tumor which microscopically resembled a hypernephroma. We shelved it and then decided it was a mucoepidermal type of tumor which may look very much like hypernephroma. Is that true?

Dr. Stout: I am very confused as yet by the mucoepidermoid tumors so that I am unable to say whether or not it could resemble a hypernephroid carcinoma.

Dr. Pinkerton: These tumors were supposed to be identical. We concluded that it was a mucoepidermal type and gave a good prognosis.

Dr. Stout: Would you not be able to differentiate it by special stain?

Dr. Pinkerton: There was nothing that would differentiate it from a hypernephroma, because there was no mucus.

Dr. Stout: If there was no mucus, I do not see how it could be called a mucoepidermoid tumor.

Dr. Severance: I thought this case was very similar to the papillary cystadenoma which you showed at our Texas meeting and I called it the same thing.

Dr. Stout: Dr. Severance recalls a case which I showed at our last seminar of a cystadenoma of the tongue and floor of the mouth without any lymphoid tissue in it, seemingly derived from the salivary glands of the floor of the mouth.

CARCINOMA, CYLINDROMATOUS TYPE, OF SUBMAXILLARY GLAND

History (presented by Lauren V. Ackerman, M.D., Columbia).—This patient, a male aged 49, had a small nodule in the region of the right submaxillary gland for ten years. It progressed in size very slightly and during the last year before admission on January 25, 1943, had become painful, with pain radiating along the second branch of the fifth nerve in the preauricular area. On examination, there was a definitely tender but hard, noncrepitant mass producing asymmetry of the right face. It was firmly attached to the mandible. There were no regional lymph nodes found. Roentgen examination of the mandible revealed a soft-tissue tumefaction in the right submental region, producing atrophic changes along the inferior mandibular body margins and destruction within the angle. In August 1943 the tumor was radically resected, taking with it the involved mandible. This patient died in March of 1946 in an automobile accident.

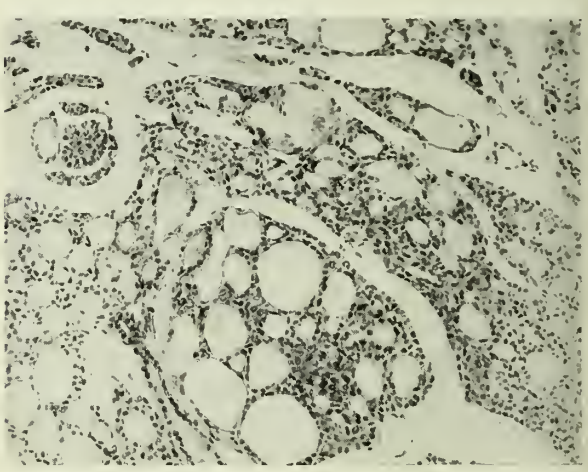
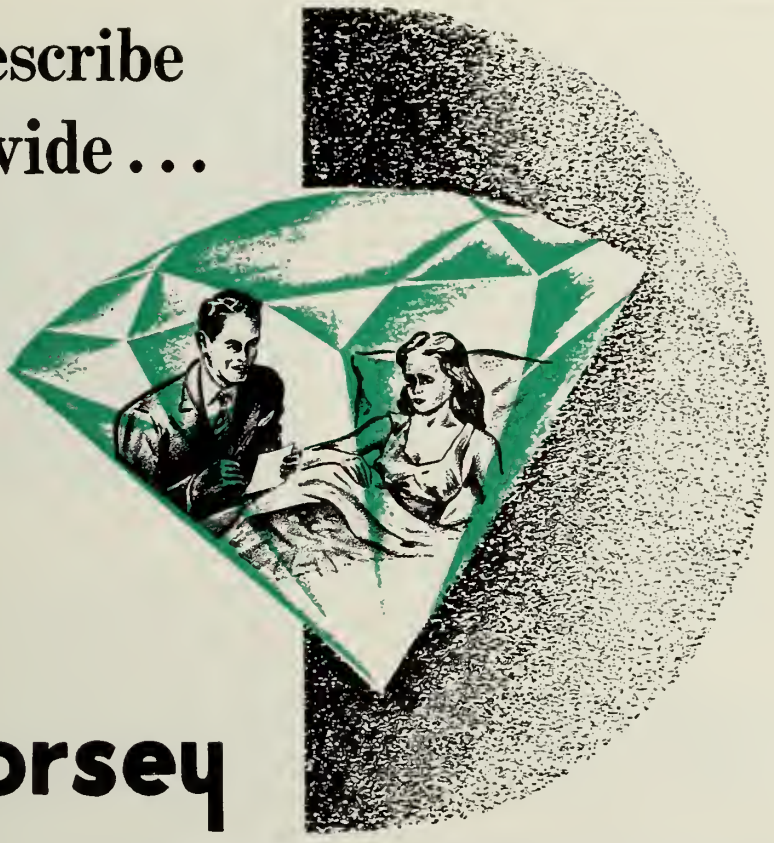


Fig. 1. Carcinoma of submaxillary salivary gland, cylindromatous type.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—Microscopic examination shows a carcinoma with varying morphology. At one end it has grown in groups or congeries of carcinoma cells honeycombed with rounded spaces filled with plugs of mucoid material producing the so-called cylindromatous effect. At the other end much of this differentiation is lost and the tumor cells are arranged in cords, masses and tubes. There are frequent mitoses and tumor cells have freely invaded several of the very considerable number of large nerve trunks present in the section.

Comment.—This tumor illustrates very well the histologic features of the cylindromatous carcinoma. These tumors in addition to the honeycomb appearance also grow by infiltration of tubes or cords of cells so that in a small biopsy it may be very difficult to decide whether or not one is dealing with a cylindromatous carcinoma. Dockerty and Mayo have made a study of fifteen cases of cylindromatous carcinoma of the submaxillary gland, five of which were primary and ten recurrent. Metastasis was also common and 50 per cent of the traced cases were dead at the end of five years. For the parotid Quattlebaum, Dockerty and Mayo reported twenty cases of cylindroma and found exactly the same result, namely, that half of them died of the disease although two of these lived past five years. Four others lived past five years but had had repeated recurrences. Our experience with cylindromatous carcinoma has not been as happy and we have exceedingly few long survivals. In the submaxillary gland where radical surgery is possible, it is certainly to be preferred to radiotherapy. On the other hand, it is well to remember that these tumors are somewhat radio sensitive and it is oc-

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casionally possible to secure a cure by this means. The characteristic feature of the tumor is infiltrative growth which is exceptionally furtive and persistent spreading widely through all varieties of tissue including bone as exemplified by this case. This case is also characteristic because of the slowness of spread lasting over a period of years.

Because of this slowness one has a right to wonder if this tumor arose upon the basis of a preexisting mixed tumor. If it did so there is no definite evidence of this in the section submitted. It should be noted that a honeycomb effect is sometimes found within a mixed tumor which does not infiltrate at all or if it does so then only to the limited extent demonstrated by many mixed tumors. I have not classified such cases as cylindromatous carcinomas since clinically they behave like mixed tumors. Dockerty and Mayo classify such tumors as an intermediate group but inasmuch as they state that six of the seven showed nerve sheath invasion, as in this case, it is uncertain to me whether or not they are referring to what I have described as mixed tumors with cylindromatous areas.

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Stout, A. P.: Tumor Seminar. Texas J. Med. 41:564, 1946.

DISCUSSION

Dr. Bauer: Do you differentiate between cylindroma and adenocarcinoma of the salivary glands?

Dr. Stout: Yes, I do.

Dr. Bauer: Why?

Dr. Stout: Because the cylindroma in some instances is radiosensitive and it pays to treat some of the cases, particularly recurrent ones, by that method. I would like to ask Dr. Regato his experience with that.

Dr. Regato: There is, Dr. Stout, as much confusion and as many differences of opinion in respect to the treatment of these tumors as there is in respect to their histogenesis. There seems to be no question but that the malignant salivary gland tumors are often very radiosensitive and, on occasion, radiocurable. We do not advocate, however, the use of roentgentherapy unless surgery is contraindicated. It is possible that a wider experience and a better knowledge of the different pathological entities will establish roentgen therapy as the treatment of choice in some of them.

Dr. Stout: I think it is very unfortunate that many of the cases of carcinoma of the salivary gland type have been reported as a solid group without any attempt to differentiate between the different types. I regret that because I think this case is a particular form of carcinoma that has peculiar features, not shown by most of the salivary gland carcinomas. It is a variety characterized by rather slow but insidious spread but particularly extending through bone in a fashion that does not make itself known clinically and perhaps can only be demonstrated by roentgen ray. I do not know whether or not any of you has read the voluminous and enormously confusing literature regarding tumors of the salivary glands. I hope some day it will be possible to bring some order out of that chaos. Our experience with what we have called carcinoma of the salivary glands is, as I have said, very depressing. There is one clinical fact that probably the clinicians here are familiar with and that is that sudden development of facial paralysis in an untreated tumor of the parotid generally means that it is a malignant tumor. The mixed tumor of the benign type does not start off by causing facial paralysis.

LYMPHOSARCOMA (LYMPHOCYTIC CELL TYPE) OF ILEUM

History (presented by Henry Allen, M.D., St. Louis).—This 10 year old male child had a history of pain localized to the entire right side of the abdomen, and although no mass could be felt, there was tenderness on deep pressure in the right lower abdominal quadrant. At the beginning of the illness, there had been a moderate diarrhea (which had subsided at the time of admission), some vomiting at irregular intervals, and a weight loss of 15 pounds in three weeks. The patient, on examination, was well developed and well nourlished; there was no evidence of peripheral lymphadenopathy. Barium enema showed a zone of obstruction in the region of the hepatic flexure. Preoperative white count was 9,250. At operation, there was an apparent intussusception of the terminal ileum into the cecum, and a palpable mass was found within the cecum. Mesenteric lymph nodes were large. The tumor apparently arose within the ileum, was almost circumferential and, for the most part, was growing beneath the superficially ulcerated mucosa. On section, it replaced the entire wall of that organ. It was grayish-white with a few areas of hemorrhage and regional nodes appeared similar.

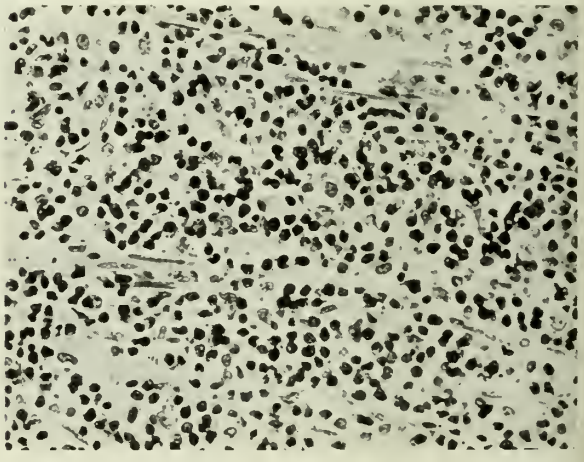


Fig. 1. Lymphosarcoma (lymphocytic cell type) of ileum showing infiltration of muscle coat.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The section shows part of the wall of the ileum with a remnant of mucosa. It has been extensively infiltrated by a tumor which has penetrated the muscle coat and formed a large mass outside of it. It is made up almost entirely of small rounded cells slightly larger than small lymphocytes which have the appearance of lymphoblasts. There is some variation in size but the majority are as described. An interesting feature is the presence of a considerable number of eosinophils occurring as scattered units. A careful search fails to reveal any Reed-Sternberg cells.

Comment.—Lymphosarcoma of the gastrointestinal tract is a relatively uncommon disease; it is, however, second to carcinoma in frequency. This statement may be challenged by those who believe the leiomyosarcomas are more common. The de-



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cision depends upon what criteria are used for determining malignancy in smooth muscle tumors. If only the unquestionably malignant are selected, then certainly lymphosarcoma is more common. Whenever lymphosarcoma is discussed, it is necessary for the speaker to explain the meaning of the terms he uses so that others may understand him for there is no unanimity in terminology for the lymphoid diseases. I recognize three classes of lymphosarcoma: reticulum cell tumors composed of relatively uniform cells more than twice the diameter of small lymphocytes; lymphocytic cell tumors whose cells are larger than small lymphocytes but less than twice the diameter, and giant follicle lymphosarcoma. This last can be subdivided into the differentiated form in which the follicles are of relatively normal appearance but of huge size, and an undifferentiated form in which the cells forming the centers of the follicles are lymphoblastic and the formation is only the caricature of a follicle. Needless to say both forms must have formed a tumor mass and infiltrated the intestinal wall so that one can be certain that the lesion is a neoplasm and not simple hyperplasia. Hodgkin's disease is not included by me nor are leukemic infiltrations.

It is an interesting fact that lymphosarcoma of the gastrointestinal tract usually starts as a solitary nodule and the cure rate for treatment is better than when the disease starts in the lymph nodes. In a recent review of our lymphosarcoma cases which arose during the twenty year period 1915 to 1934 inclusive, there were thirteen gastrointestinal tract lymphosarcomas recorded, only ten of which however were treated. Four of these were symptom-free more than ten years after treatment. None of the long symptom-free survivals, however, was primary in the small intestine; three were stomach cases and the other in the rectum. This experience parallels that of Raiford, Warren and Lulenski and others.

It is not always easy to differentiate between benign lymphoid hyperplasia which forms tumor-like nodules and true lymphosarcoma. One finds hyperplastic lesions especially in the rectum and lower sigmoid where clinically they simulate polyps, and in the appendix. Cases have been reported by Knox, Morehead and Woodruff and by myself. In a few instances, the appendix has been the site of origin of a malignant lymphosarcoma but most of such lesions are benign.

It is evident that others use less exigent criteria for diagnosing Hodgkin's disease than we do for there are records of only two cases involving the gastrointestinal tract in our files, one in the jejunum and one in the ileum while there are fifty cases of lymphosarcoma—sixteen in the stomach, seventeen in the colon, rectum and anus and seventeen in the small intestine.

It is not surprising to find lymphosarcoma occurring in a child. Raiford mentions five cases under 10 years, the youngest only 6 months of age and we also have seen it. Nor is it unusual for the tumor to project into the lumen in such a way as to cause intussusception. The lesion is generally treated by surgery, at least primarily, and it has been our custom to follow this by postoperative radiotherapy in case there may be involvement of any of the regional nodes left behind.

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DISCUSSION

Dr. Allen: Would it influence your opinion any if you found Reed-Sternberg cells in an adjacent lymph node?

Dr. Stout: Yes, it would. If Reed-Sternberg cells were present, I would have to change my diagnosis to Hodgkin's. Did you find any?

Dr. Allen: I thought there were some.

Dr. Stout: I examined sections of the lymph nodes from the mesentery and failed to find any Reed cells or other evidences of Hodgkin's disase. Did you see any in the intestinal lesion?

Dr. Allen: No.

Dr. Stout: How did you classify it?

Dr. Allen: Hodgkin's. Would the presence of a large number of eosinophils be against a diagnosis of lymphosarcoma?

Dr. Stout: Not to me. There are often so many in the intestinal tract that I pay no attention to them unless I can line them up with something else. Did the lymph nodes show architectural changes?

Dr. Allen: Two small lymph nodes were examined, one had not lost its architecture, and one did show loss of architecture.

Dr. Stout: How many Reed-Sternberg cells did you find?

Dr. Allen: I did not count them.

Dr. Regato: You mentioned that these lymphosarcomas of the gatrointestinal tract have a better prognosis than when they are found in lymph nodes. This is also true of lymphosarcomas which arise in the upper air passages. They have a better prognosis when they are confined to their area of origin, and before they have become widely disseminated. It is doubtful whether lymphosarcoma originates in lymph nodes and when it is found in them, a thorough clinical search often will reveal a primary lesion in the upper air passages or gastrointestinal tract. Consequently, to say that lymphosarcoma has a bad prognosis when it is found in lymph nodes is equivalent to saying that the prognosis of lymphosarcoma that has metastasized is worse than that of undisseminated lymphosarcoma.

Dr. Stout: No more than about twelve years ago, I think, there were a number of articles which intimated that lymphosarcoma was always a hopeless disease. Many physicians, in the past anyway, have had the opinion that if a lymph node is taken out and a diagnosis of lymphosarcoma is made, the patient is doomed —has no chance at all. Of course, I take violent exception to that attitude and I have another paper coming out on that subject in which I have gone over all our cases, treated and untreated, of more than ten years ago. This paper has not appeared yet but it will come out in the *New York Journal of Medicine* and deals with ten year results. We have about seventeen patients who

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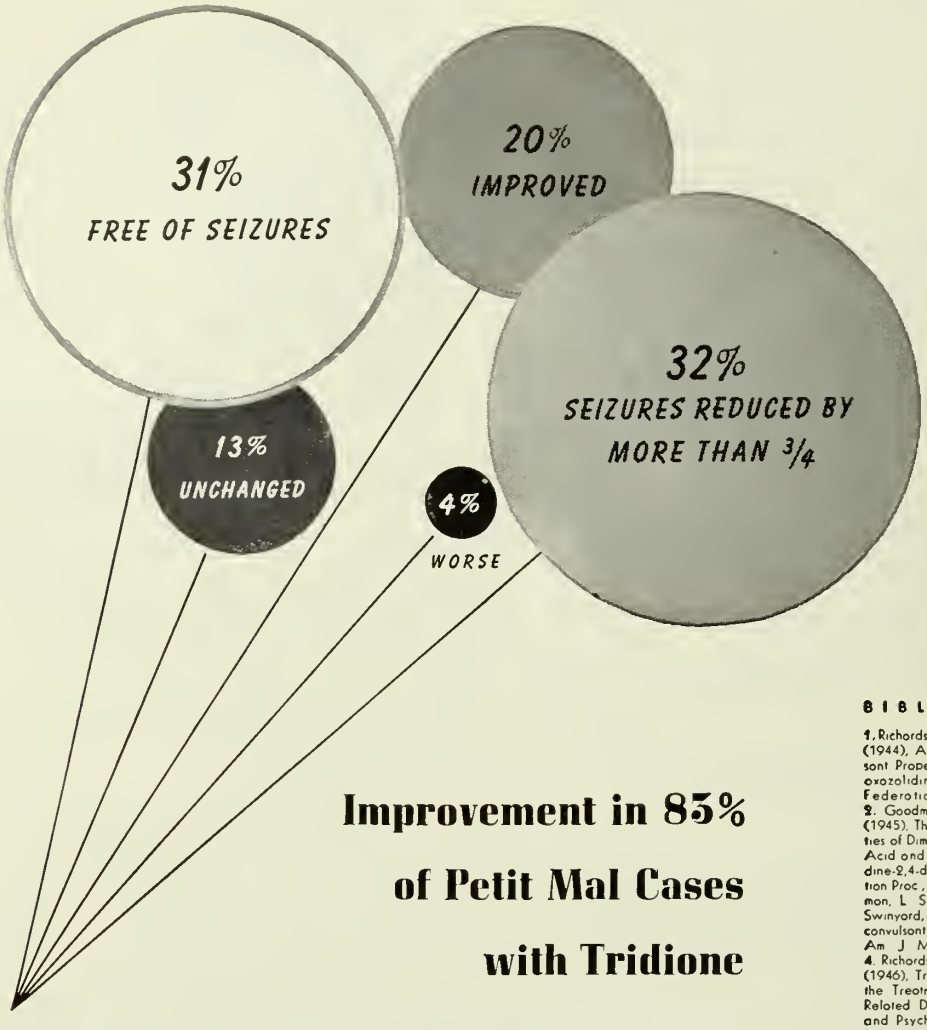
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have lived past ten years and sixteen of them remain symptom free from ten to fifteen years. Probably some will point out that ten years is not enough time and that the cases must be autopsied to see whether they have any traces of lymphosarcoma left. As a practical matter, however, we can offer a rebuttal of that—the fact that not one single patient who was not treated was cured. They all died and I think only two of them lived as long as ten years. The varieties of tumors which gave long survival were, as you pointed out, Dr. Regato, chiefly the ones involving the upper respiratory passages, the upper alimentary tract, the lower alimentary tract, the skin and the orbit. The percentage of ten year cures in those regions was something like 20 per cent but for primary lymph node involvement the cure rate was only 6 per cent. However, we did have a 6 per cent cure rate when the lymph node was the first manifestation of the disease and in those cases only lymph nodes were involved. So, I cannot agree with you that lymph node involvement is only metastatic, but I have to believe that lymph nodes primarily can be involved. These good results were obtained by radiotherapy, surgical therapy, or a combination of the two, particularly when only one group of lymph nodes, or at most two groups of lymph nodes, were involved. I well remember also that they were not all giant follicle lymphosarcoma which you might say is not lymphosarcoma. Do I take it, Dr. Regato, that you feel utterly hopeless when you encounter lymphosarcoma of the lymph node.

DR. REGATO: No, sir. The point I was trying to raise was perhaps an academic one. In 1939 I reported a series of thirty-seven lymphosarcomas of the tonsil, fifteen of which remained well after roentgentherapy, although many of them presented voluminous metastatic adenopathies. We like to believe that lymphosarcomas which are found in lymph nodes are metastatic. We find that this hypothesis is stimulating to our house staff members and students, inasmuch as it usually promotes the search for a primary lesion. This eliminates all consideration of lymphosarcoma as a systemic disease.

DR. STOUT: We have primary cases of more than ten years which started in the axillary nodes and also in the inguinal nodes and there is less chance, I think, of an occult site in these zones than in the cervical area where it is very easy to miss a primary intra-oral site.

DR. PLATTE: What would you say as to the prognosis and treatment of polypoid lymphosarcoma in the rectum of a 66 year old man?

DR. STOUT: Did it invade through muscle?

DR. PLATTE: Yes.

DR. STOUT: I would say the chances were very excellent for cure. I have one of the people working in my laboratory investigating those cases now in which there were polypoid tumors of the rectum and sigmoid which were mistaken for adenomatous polyps, and which proved to be lymphoid tumors and, without exception, so far as the cases have been followed, there have been no recurrences and no evidences of lymphosarcoma developing in other parts of the body, and I believe that such proliferation might be called lymphoma. I would like to use the term lymphoma, meaning a benign lymphoid growth but, of course, too many people have assigned a malignant meaning to that term.

DR. PLATTE: Would you subject that patient to any radical surgery?

DR. STOUT: I would not.

MESOTHELIOMA (?) OF ILEUM

History (presented by Lauren V. Ackerman, M.D., Columbia).—This patient, a male aged 73, was first seen in the hospital on May 5, 1941, for an epidermoid carcinoma of the lower lip. In June 1942 he gave a history of severe, acute peri-umbilical pain which caused nausea and vomiting on several occasions. On abdominal examination, there was a moderate degree of voluntary muscle guard and some rebound tenderness. The appendix had been removed several years previously. Examination by auscultation during a cramp-like episode of pain revealed many gurgling intestinal noises. A stool showed four plus blood. Gastrointestinal series revealed evidence of some segmental dilatation. No tumor mass could be identified. The patient returned in December 1943 with subacute intestinal obstruction. He was explored and about 85 cm. of terminal ileum were resected on December 18, 1943. Nine centimeters from the point of transection there was an area of almost complete obstruction. The serosal surface of the bowel in this area was grayish-white and, on section, the wall of the bowel was thickened, measuring up to 1.2 cm. There was an area of questionable superficial ulceration in the region of this thickening. This patient was last seen August 1946, at which time he was in good general condition, without clinical evidence of recurrence.

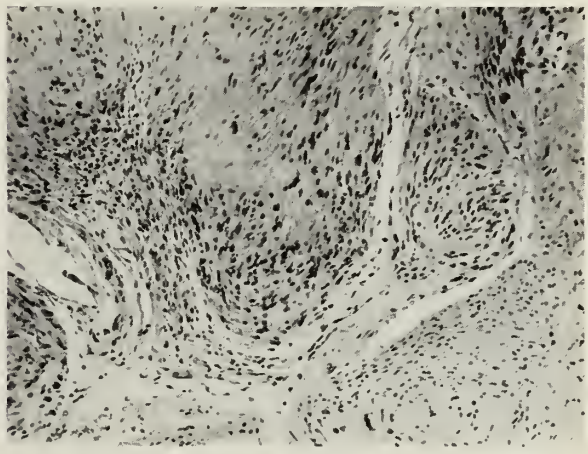


Fig. 1. Mesothelioma (?) of ileum.

ARTHUR PURDY STOUT, M.D.: *Microscopic Description* (fig. 1).—The seminar slide shows a tumor the largest amount of which is found outside of the muscle coat of the ileum in the subserosa. It has penetrated the muscle freely and destroyed it completely in one narrow zone. It has also invaded the submucosa but has failed to destroy the mucosa except over a microscopic area. The tumor cells are for the most part cuboidal and they line small tubular and larger cystic spaces. In the larger spaces the cells are sometimes flattened. In many there are complex papillary formations some with fibrous stalks but the majority without. No definite evidence of secretional activity is observed. The tumor does not actually occupy the serosal surface which is partly covered by fibrin. One calcospherite is found within a microcyst.

Comment.—At first glance one is tempted to call this tumor a carcinoma of the ileum but there are several features which make this questionable. In the first place most of the tumor is outside of the muscle and it appears to penetrate the muscle from outside, only secondarily involving the mucosa. It is also peculiar to find papillary formations inside some of the microcysts. Finally, the cells do not at all resemble the cells of the mucous glands nor do

they secrete mucus. If one rejects an origin from the mucosa of the ileum there are three other possibilities to be considered. It might be a metastatic lesion. Against this are the absence of any other primary source and the apparent cure following resection. A second possibility is an origin from heterotopic structures such as endometrium, stomach or pancreatic epithelium. This cannot be excluded but seems unlikely because the morphology of this tumor does not suggest an origin from any of these tissues. Finally, an origin is possible from the mesothelium of the peritoneum. This seems to me to be worthy of serious consideration because in many places the cells look something like mesothelial cells which have become swollen and hyperplastic through irritation and they also resemble some of the malignant mesotheliomas. The papillary formations, the calcospherite and the way in which the tumor cells sometimes spread out in a single layer over broad surfaces are most suggestive. Against it is the fact that the tumor has remained localized in one small area and has penetrated deeply instead of spreading widely over a broad extent without any deep penetration. This is indeed a serious criticism. It can be pointed out, however, that localized mesotheliomas have been described arising in the pleura and benign localized mesotheliomas have been reported developing in the genital organs of both males and females by Masson and his coworkers and Evans. So far as my experience goes this tumor is unique.

DISCUSSION

Dr. Stout: Did anybody feel that this might be a mesothelioma? Did the rest of you think that it was a carcinoma of the ileum? How many thought that? Well, there must have been other opinions! Carcinoid! I would question carcinoid very strongly for the reason that this tumor formed gland-like areas and the most that a carcinoid can do is form rosettes.

Dr. Gray: I called it metastatic from an unknown source.

Dr. Stout: I am interested in these mesotheliomas. I would like to ask if anyone here agrees with Evans and Masson in their mesothelial tumors of the genital structures, which are apparently glandular in type. It has been questioned privately by Warren and publicly by Ash. They take exception to that interpretation. They are very striking tumors when you first encounter them, and have been variously diagnosed in the past as lymphangioma and angiomas.

Dr. Gray: Lymphangiomas?

Dr. Stout: I do not know what they are. It is a nice hypothesis to think of them as mesotheliomas but, if so, why should they be found only in the lower peritoneal areas?

Dr. Gray: What about a lymphangiosarcoma for this case?

Dr. Stout: I cannot deny that. All I can say is that it looks different from any of the angiomatous tumors with which I have been familiar in the past. In fact, this tumor is unique in my experience and I am only offering that diagnosis with a queston mark. I have three ways of making diagnoses: with a question mark, without question, and undiagnosed. It is always of interest to me to remember those undiagnosed tumors and sometime, years afterward, remove them from that class when someone describes the variety to which they belong.

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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

TUBERCULOSIS IN MENTAL SCHOOLS AND HOSPITALS IN OHIO

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 8, August, 1947.

A report of the extent of the tuberculosis problem in the mental schools and hospitals in Ohio reveals the existence of a reservoir of tuberculosis which constitutes a serious public health problem. This source of infection has not received the attention it demands.

The Ohio Department of Public Welfare, which is responsible for the care of patients of state institutions, has long been interested in determining the prevalence of tuberculosis in the mental schools and hospitals of the state to be used as the basis for the development of an adequate control program. The potential hazards, of institutional life to the physical welfare of both patients and employees were recognized. However, it was realized that only through a mass survey would it be possible to ascertain the precise nature of the hazard and thereby provide the fundamental knowledge upon which to build this future program of tuberculosis control.

The present investigation embraced the total population of twelve of the fourteen mental schools and hospitals in the state. In order to obtain a basis for study of the tuberculosis problem in these institutions a review of the deaths occurring in the fourteen state institutions during the five-year period ending December 31, 1945, was made. During this period 1,094 or 13 per cent of all the deaths were due to tuberculosis. In 1943, there were 128 known cases in these institutions, in 1944 this had risen to 148 known cases. In 1945, shortly after the start of the survey, 351 cases were known or 1.55 per tuberculosis death.

The total number of individuals examined was 25,351 of whom 22,387 were patients and 2,964 were employees. X-ray evidence of tuberculosis (noncalcified primary, reinfection-type tuberculosis, pleurisy with effusion or silicosis with infection) was found in 1,474 or 6 per cent cent of the total. Another 2 per cent of the total screened revealed evidence of non-tuberculous lung pathology.

Of the 1,474 cases of tuberculosis, 1,379 or 94 per cent were patients and 95 or 6 per cent were employees. Distribution of tuberculosis by stages of disease was discovered among the resident patients and employees in approximately the same relation

in which it has been found in surveys of general population groups.

Distribution of tuberculosis by age groups revealed a striking similarity between the occurrence of the disease in the patients and the employees—71 per cent of both groups were in the age groups over 45 years. The gradual increase in the percentage of cases discovered as the age groups advance suggests that prolonged residence in the institution may be an important factor in producing new cases.

The findings in this survey have served to accentuate the need for an adequate tuberculosis control program for the mental institutions in the state of Ohio. Six per cent of all the patients and 3 per cent of the employees were tuberculous. These rates together with the findings of a greater percentage of tuberculosis in the older residents suggests that a large part of the affected groups contract their infection during their residence in the institution.

Because of the prolonged intimate association which is a part of institutional segregation, exposure from unknown and non-isolated infectious cases must occur. Tuberculosis among employees merits the serious consideration of hospital authorities. Whatever and wherever the source of an employee's tuberculous infection, it can hardly be denied that harmful exposure to unrecognized cases occurs in many institutions. Through release of unknown communicable cases or through probationary visits or by discharge, the exposure of the general population to the disease becomes a problem of first importance. Protection of the physical health of the patient, mentally normal or psychotic, is a fundamental responsibility, yet this pool of infection has been allowed to increase abundantly. It can only be dried up through systematic surveys applied in this direction.

Fundamentally the problem stems from the commitment of individuals with infectious tuberculosis and the development of new cases while these individuals are in residence. Cases can be detected on entrance to the institution through routine screening X-rays of all admissions and preplacement X-rays of employees. Suspicious cases should be properly confirmed by the appropriate clinical and laboratory procedures which comprise an adequate diagnostic whole. Cases that develop during residence in the institution can be found through periodic routine screening of the entire institutional personnel. Active, infectious cases found on admission or during periodic check-ups should be isolated in hospital facilities especially provided for this purpose. A large percentage of suspect cases will need further observation in order to determine the activity and infectiousness of the disease. Such persons should be isolated in a separate tuberculosis unit, where further diagnostic studies can be made and their exact status established. When these cases no longer constitute a public health problem, they may be returned to their respective institutions.

Treatment of the mentally ill patient with tuberculosis is essentially the same as that prescribed for the mentally normal tuberculous patient. Rest is the basic therapeutic measure and should be obtained, if necessary, by administration of sedatives. Sputum conversion is one of the objectives of treatment and collapse therapy, as indicated, can and should be utilized to achieve this goal.

Tuberculosis in Mental Schools and Hospitals in Ohio, Mark W. Garry, M.D., Ohio Public Health, September, 1946.

BOOK REVIEW

HISTORY OF THE AMERICAN MEDICAL ASSOCIATION 1847 to 1947, A, by Morris Fishbein, M.D., with the Biographies of the Presidents of the Association By Walter L. Bierring, M.D., and with Histories of the Publications, Councils, Bureaus and Other Official Bodies. W. B. Saunders Company, Philadelphia & London. Price $10.00. 1947.

In this book are 1,226 printed pages which are replete with what the American Medical Association has done during the century of time, which lies between the time of its founding and the present day. After a short introduction to which the names of the members of the Board of Trustees are appended there is a brief preface by Dr. Morris Fishbein.

The text properly begins with a biography of its founder, Dr. Nathan Smith Davis, by Dr. Nathan Smith Davis III. This is followed by "The History of the American Medical Association" by Dr. Fishbein, and it covers more than 500 pages. It is compiled from the proceedings of the Association and other sources and exhibits the same kind of efficiency which this author has always demonstrated as editor of the *Journal*.

It concludes with two very interesting chapters, one of the "Libel Suits of the American Medical Association" and the "Indictment and Trial by the Federal Government."

Next one finds a page or two about each one of the nine recipients of the distinguished service medals which the Association has awarded for scientific service between 1938 and 1946, with the portrait of each of these. Then there are the biographies of all of the Presidents of the Association of which Dr. Walter L. Bierring is the author. Each of these is also accompanied by a portrait. There are four Missourians among them; namely Charles A. Pope in 1854, John T. Hodgen in 1881, Elisha H. Gregory in 1887, and Jabez N. Jackson in 1927. Victor C. Vaughan, the sixty-sixth President in 1914 was born in Randolph County, Missouri, but moved to Michigan in his early twenties.

That part of the book devoted to the Officers, Councils and Bureaus of the Association is of more than passing interest. On page 865 one finds that a resolution on the regulation of patent and proprietary remedies, adopted in 1847 after presention by Dr. John B. Johnson, of Missouri, was the first step toward the creation of the Council on Pharmacy and Chemistry. On pages 961 one finds that the actual beginnings of the Council on Industrial Health date from the introduction in 1936 by one of our present delegates, Dr. A. R. McComas, of a resolution calling attention to the need for it. There are numerous other important chapters.

Among the appendices the one on the "Dates in the History of the Council on Medical Education and Hospitals" is a chronological chart of the progress of medical education in this country.

There is an index of personal names and another of subjects, making the whole work a veritable one-volume encyclopedia of one century of American medical organization. R. E. S.

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AUGUST, 1947

EDITORIALS

HOSPITAL SURVEY IN MISSOURI

The Division of Health of Missouri and the Hospital Advisory Council are conducting the survey of hospitals in Missouri in accordance with the terms of the federal Hill Burton Hospital Construction Act and state permissive legislation adopted in 1946. They have announced that the work is progressing steadily. A total of 204 hospitals are to be surveyed of which 17 per cent have already completed their information forms and have submitted them to the Division of Health. As soon as all of the returns are in, the committee will formulate a state plan for the construction of hospitals.

Data concerning such factors as population, morbidity, mortality, natality, financial resources, trade areas and personnel are being compiled in order to begin work on the plan. Some twenty states have completed the survey and are working on the individual state plans.

Under the terms of the national act, Missouri will be eligible to receive approximately $11,000,000 of federal money. Based on the survey and the official state plan, the state itself, any county or community or nonprofit hospital association, such as a religious group, may obtain up to one third of the cost of a new hospital project or addition to present facilities from federal funds, provided that the recipient is able to supply the remaining two thirds and also furnish evidence of ability to maintain properly the project after construction.

PREPAYMENT MEDICAL AND SURGICAL CARE IN MISSOURI

The annual reports of Missouri Medical Service, St. Louis, and Surgical-Medical Care, Kansas City, released April 30, 1947, furnish interesting information about the development of prepayment medical and surgical care plans in Missouri. Missouri Medical Service, now two years old, covers 80,548 persons, while Surgical-Medical Care, now four years old, has a membership of 145,000 persons.

The two plans combined have paid a total of $1,390,000.00 to Missouri doctors for service rendered subscribers of the two organizations, Missouri Medical Service having paid $290,000.00 and Surgical-Medical Care $1,100,000.00.

Utilization by the membership of both plans has been quite heavy with the principal classifications of usage falling into the broad categories of diseases of the respiratory system, diseases of the digestive system, diseases of the genitourinary system, deliveries and complications of pregnancy, childbirth and puerperium. More specifically, the categories of tonsillectomy, appendectomy, hernia, pelvic surgery and obstetric care head the list.

Both organizations supply almost the same benefits to subscribers; namely, complete surgical service, treatment of fractures, obstetric service and medical care in hospitalized cases up to twenty-one days in a contract year, and allowances for x-ray, clinical pathology and anesthesia.

All in all, the two Boards of Directors are gratified with the operation of the program. All concerned wish that the spread of membership had been more rapid; however, it is also important that the financial side be watched closely. As the public becomes more familiar with the over-all objectives, increased enrollment will result. The financial experience has been excellent and resources are deemed quite sufficient for any contingency.

RESOLUTIONS PRESENTED TO THE AMERICAN MEDICAL ASSOCIATION

Two resolutions were presented by Missouri Delegates to the House of Delegates of the American Medical Association at the Atlantic City Session. The first resolution, dealing with the care of veterans, was adopted by the House of Delegates of the Missouri State Medical Association at the Kansas City Session. The resolution follows:

WHEREAS, The Congress of the United States enacted in 1946 Public Law No. 293, which provided for the medical care of veterans and authorized the employment of professional personnel by the Director of the Veterans Administration, and

WHEREAS, The provisions of Public Law No. 293 give permission to the Director of the Veterans Administration to employ personnel whose qualifications for administering medical care are limited because of educational attainments, and

WHEREAS, The medical personnel, accepted for commission in the Medical Corps of the United States Army and the United States Navy, was limited to those who were qualified as Doctors of Medicine, therefore be it

Resolved, By the House of Delegates of the Missouri State Medical Association, assembled in the 89th Annual Session, that it disapproves of the employment of any person who claims to be educated in the healing arts for the medical care of veterans eligible to the benefits as provided by the Acts of Congress for the medical care of veterans, when said person was not acceptable to the Medical Corps of the United States Navy for commission as a medical officer, be it further

Resolved, That the Sections of Public Law No. 293, giving such permission, should be repealed, and be it further

Resolved, That this resolution be presented by the Delegates from the Missouri State Medical Association to the House of Delegates of the American Medical Association at the next annual session of the House of Delegates of the American Medical Association.

The resolution was referred to the Reference Committee on Legislation and Public Relations of the American Medical Association which reported as follows:

"Your reference committee has reviewed the resolutions presented by the Missouri State Medical Association on Public Law No. 293, which permits the employment of unqualified professional personnel in the Veterans Administration.

"Your committee is in agreement with these resolutions in principle and submits the following substitute resolutions:

"*Resolved,* That the House of Delegates of the American Medical Association go on record in its disapproval of the employment of unqualified personnel in the Veterans Administration; and be it further

"*Resolved,* That it recommends the repeal of this provision in Public Law No. 293."

This report was adopted.

The other resolution, adopted by the Council, follows:

Whereas, Some medical schools are in need of a greater income to maintain their present high standards of instruction and scientific medical research; and

Whereas, It is actually impossible to increase the tuition fees sufficiently to secure the required funds; and

Whereas, Certain schools of medicine are considering the organization of clinics for the practice of medicine and surgery on a profit making basis in order to attain this end; and

Whereas, Such clinics would be in direct competition with the graduates of the medical schools involved as well as with all other practicing doctors of medicine; therefore be it

Resolved, That the House of Delegates of the American Medical Association be requested to instruct the Council on Medical Education and Hospitals to study this problem and find the proper means for combatting this critical situation, which might even require an appeal to existing foundations or the creation of a new national voluntary foundation for the specific purpose of subsidizing approved medical schools which require financial assistance.

The report of the Council on Medical Education and Hospitals contained plans for a resurvey of all medical schools concerning which report the Reference Committee on Medical Education reported: "It is gratifying to note that plans are under way by the Council for a comprehensive resurvey of all medical schools and all aspects of medical education, including the financing of education, the teaching of medical economics and the social aspects of medicine, of public health, of preventive medicine and of other components of the medical school curriculum."

Of the resolution presented from Missouri, this Reference Committee stated more specifically: "Your reference committee finds that the Council is planning to include a study of the financing of medical education in its survey of medical schools. Your committee recommends that the resolution be referred to the Council on Medical Education and Hospitals for study in connection with the resurvey of medical schools."

NEWS NOTES

Cyrus E. Burford, M.D., St. Louis, was elected president of the Association of Genito-Urinary Surgeons of America at the annual session of the association in Absecon, New Jersey, on June 5.

E. M. Moore, M.D., Sr., Higginsville, recently was appointed physician at the Confederate Home at Higginsville.

A. N. Arneson, M.D., St. Louis, was installed as president of the American Radium Society at the annual session of the society in Atlantic City in June.

George H. Thiele, M.D., Kansas City, was installed as president of the American Proctologic Society at the annual meeting of the society in Atlantic City on June 9.

The Missouri Society for Neurology and Psychiatry will hold its annual fall meeting at the Glenwood Sanatorium, Webster Groves, on October 14, at 1:00 p. m. All physicians are invited.

James Barrett Brown, M.D., St. Louis, has been awarded the Legion of Merit for his work as chief of plastic and maxillofacial surgery at Valley Forge General Hospital from June 1943 to August 1945.

ORGANIZATION ACTIVITIES

COMMITTEE ON MATERNAL WELFARE GIVES INFORMATION ON EMIC

The Committee on Maternal Welfare presents the following letter from L. M. Garner, M.D., Director, Child Hygiene, Division of Health, so that members may have this latest information on the EMIC program. The letter follows:

"The United States Congress recently took action to terminate the Emergency Maternity and Infant Care Program for families of soldiers of the lower four pay grades in the U. S. armed forces.

"The only eligible maternity case applicants, after July 1, 1947, will be those who were pregnant before June 30, 1947. Such cases are eligible even though the wife and her physician delay several months in applying for authorization. The unborn infant, in such cases, is eligible for care under the EMIC plan until 1 year of age.

"All maternity and infant cases for whom care is authorized prior to June 30 will, of course, be carried to completion.

"Wives who become pregnant after June 30, 1947, are not eligible to receive care under EMIC. Applications received on which the physician gives the expected date of confinement to be after April 5, 1948, are not eligible."



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MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for August and September, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

August 1: Gynecologic and Genitourinery.
August 6: Miscellaneous.
August 8: Breast.
August 13: Skin.
August 15: Cervix.
August 20: Gastrointestinal.
August 22: Head and Neck.
August 27: Skin.
August 29: Bone and Lymphomas.
September 3: Miscellaneous.
September 5: Gynecologic and Genitourinary.
September 10: Skin.
September 12: Breast.
September 17: Gastrointestinal.
September 19: Cervix.
September 24: Skin.
September 26: Head and Neck.

CASH SICKNESS BENEFITS FOR RAILROAD WORKERS GO INTO EFFECT

A cash sickness benefit system for railroad workers began operating throughout the nation on July 1. These benefits were added under the 1946 amendments to the Railroad Unemployment Insurance Act and provide partial compensation for wage loss due to disability on the same basis as that due to unemployment. The system will be administered by the Railroad Retirement Board, which administers the Railroad Unemployment Insurance Act.

All disabilities which prevent railroad employees from working, regardless of how or where they occur, are covered under the program. In the first year of operations, about 300,000 of the 2,075,000 railroad workers qualified are expected to receive benefits, and the total amount of benefits is expected to reach $36,000,000.

A physician's statement of sickness will be required before claims can be paid. It is believed that the program will require about 650,000 medical examinations a year. Employees are free to choose their own doctors, and any physician to whom an employee goes for examination or treatment may supply the information required as initial proof of an employee's claim.

The forms on which medical information will be requested from a physician are the "Statement of Sickness" and the "Supplemental Doctor's Statement." The first mentioned form is intended primarily to obtain information at the beginning of each illness, and the second is intended to obtain additional information only when such information is needed later on in the same illness. The statements are designed to furnish, as simply and as conveniently as possible for the physician, the minimum information required for Board purposes.

The "Statement of Sickness" on which the medical evidence is to be furnished must be mailed to the appropriate office of the Railroad Retirement Board within seven days after the first day claimed as a day of sickness, or the employee may lose part of his benefits. Claims for succeeding fourteen day periods may be allowed for a predetermined period as indicated by the medical evidence on the doctor's initial statement, but in continuing illnesses supplemental information about the patient's illness may also be requested from the physician.

Claims will be filed and adjudicated in the regional offices of the Railroad Retirement Board. These offices are located in Atlanta, New York, Cleveland, Chicago, Dallas, Kansas City, Minneapolis, Denver and San Francisco and serve the adjoining territories. Each will have a physician who will act as a medical consultant.

SOCIETY PROCEEDINGS

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular annual dinner meeting at the Missouri Athletic Club, St. Louis, May 28, at 8:00 p. m. with 253 members and guests present.

Richard Sutter, M.D., thanked the entertainment committee for planning the evening, the committee being Drs. Otto W. Koch, Lois Wyatt and Robert Kingsland.

Andrew Conway Ivy, M.D., Chicago, spoke on "Nazi War Crimes of a Medical Nature." It was brought out that these war crimes occurred and gained momentum under state medicine and political despotism to such an extent that even Hitler could not stop them.

A vote of thanks was given Dr. Ivy for his presentation and for giving his time for the trip just prior to leaving for Germany to work further on the War Crimes Investigations.

On motion, Dr. Ivy was made the first honorary member of the St. Louis County Medical Society.

Martyn Schattyn, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

F. J. JOLLEY, MEXICO, COUNCILOR

The Fifth Councilor District met in Columbia on June 16 with F. J. Jolley, M.D., Mexico, Councilor, presiding, and the Boone County Medical Society acting as host.

J. Dewey Bisgard, M.D., Associate Professor of Surgery, University of Nebraska, opened the program at 3:30 p. m. with a talk on "Cancer Ulcer Problems of the Stomach." An enthusiastic discussion followed Dr. Bisgard's presentation.

After the cocktail hour and dinner the program was resumed with a short address by Dr. Jolley to the members of his district. This was followed by a brief discussion by Walter S. Sewell, M.D., Springfield, president of the Community Health League, of the current problems of that organization. He urged more widespread financial cooperation with the Community Health League so that the league could consider taking action in some of these pressing problems.

Harold C. Lueth, M.D., Dean of the Medical School, University of Nebraska, and Professor of Medicine at the same institution, then discussed some of the problems confronting medical educators who are concerned with the problem of training doctors for rural areas. He outlined the newer plans of some of the Midwestern medical schools that have a particular interest in this phase of medical education and made a particularly strong plea for the establishment of graduate educational services in these medical schools. Dr. Lueth emphasized the importance of continuing the training of doctors after they have received their M.D. degrees and pointed out several ways in which this training is being carried on in some of Missouri's alert Midwestern neighboring states.

Charles A. Leech, M.D., Secretary.

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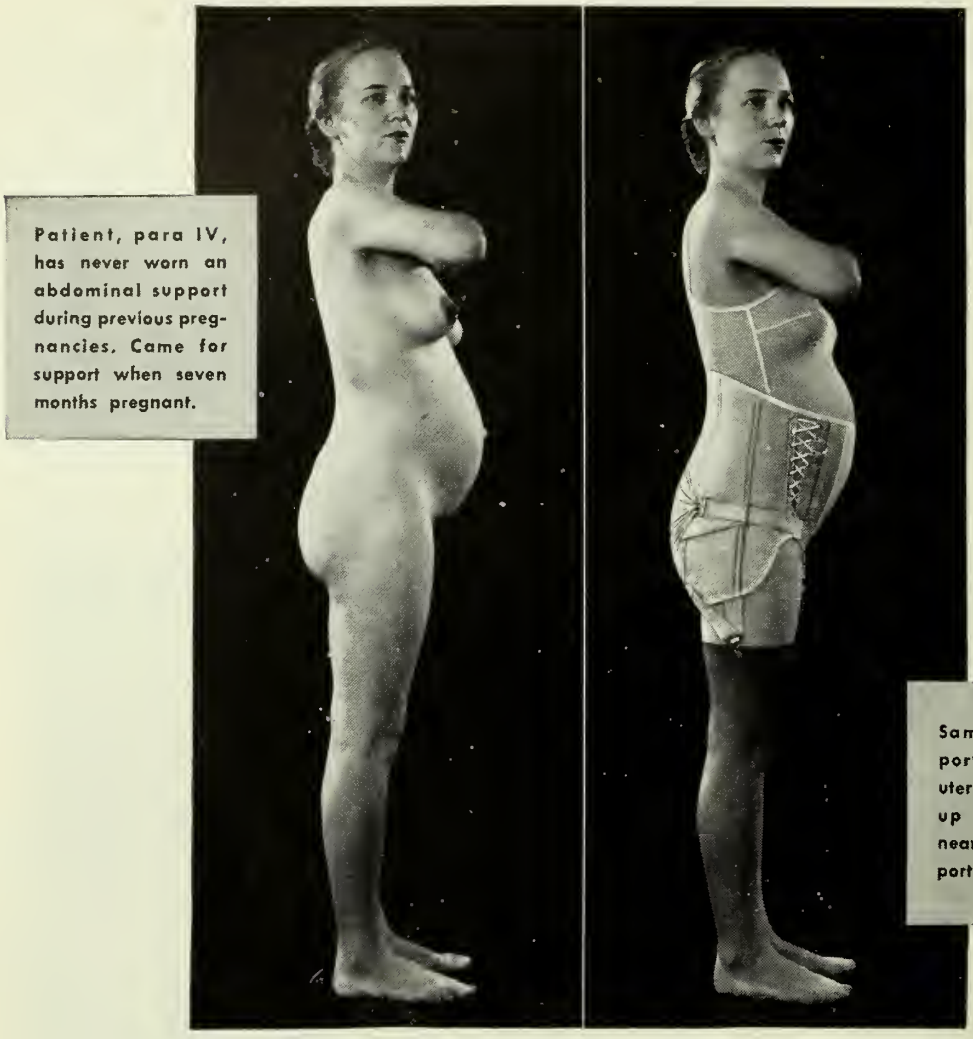
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NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met for dinner at Mountain Grove on June 20 with the following members and visitors present: J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., R. W. Denney, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; J. R. Womack, M.D., Houston; C. F. Callihan, M.D., Willow Springs; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains; W. T. Eudy, M.D., Eminence; James H. Horton, M.D., and Roland Langston, M.D., Springfield.

After dinner the meeting was called to order in the office of Dr. Ryan.

Dr. Horton gave an interesting talk on "Fracture of the Hip" illustrated by a number of slides of cases recently treated.

Dr. Langston then spoke on "Perforating Duodenal Ulcer with Subdiaphragmatic Abscess" and showed roentgen ray plates of several cases in his practice.

A vote of thanks was given to the speakers.

The Society adjourned to meet in Cabool on July 18.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

RADIOLOGY FOR MEDICAL STUDENTS, by Fred Jenner Hodges, M.D., Professor and Chairman, Department of Roentgenology, University of Michigan, Isadore Lampe, M.D., Association Professor, Department of Roentgenology, University of Michigan, and John Floyd Holt, M.D., Assistant Professor, Department of Roentgenology, University of Michigan. The Year Book Publishers, Inc., 304 S. Dearborn Street, Chicago. 1947. Price $6.75.

This is a pocket-sized hand book designed for the teaching of medical students. It is written in free flowing style which is easy to read and the book is well illustrated throughout. The prestige of the authors in the field of radiology gives highest authenticity to the work.

The first half of the book is given over to diagnostic roentgenology. Some mention is made of practically all phases of diagnostic roentgenology which might be considered of importance to the student and yet the various subjects are not dealt with at such length as to become cumbersome for teaching of students. The subjects covered are: the head, the spine and extremities, the thorax, the gastrointestinal tract and the urinary tract.

The last portion of the book is given over to therapeutic radiology. A general view of therapeutic radiology is given first to acquaint the student with the methods of procedure, the basis of administration of radiation and its indications. Fields in which radiation therapy is considered are skin, lips and oral cavity, the head and neck, the breast and female genital tract, male genitalia and urinary tract, lymphoblastomas and leukemias, bone, chest, gastrointestinal tract, central nervous system and infections.

The book is well printed, on good enamel paper, and the illustrations are excellent; it is executed throughout in the faultless manner characteristic of this publisher.

L. R. S.

AN INTEGRATED PRACTICE OF MEDICINE, A Complete General Practice of Medicine From Differential Diagnosis by Presenting Symptoms to Specific Management of the Patient. By Harold Thomas Hyman, M.D. 1,184 Illustrations, 305 in Color, 318 Differential Diagnostic Tables. Volumes I, II, III and IV and Index. W. B. Saunders Company, Philadelphia and London. 1947. Price $50.00 per set.

This four volume work is a very ambitious undertaking inasmuch as it attempts to cover the entire field of medical practice. In this reviewer's opinion, it does so quite well. Moreover, it is readable, and the recommended treatments are usually of the kind that are practicable.

The section on skin diseases contains many good illustrations in color. The section on cardiology contains eighty electrocardiographic tracings for the reader to study and check his own diagnosis with the appended diagnosis. Volume IV contains a large section on history taking and physical diagnosis by systems. Anatomy is reviewed as a part of the examinations of each region of the body. The section on pharmacology is especially good, and numerous useful prescriptions appear throughout the book. There is a section on office laboratory procedures which is much more extensive than the usual medical office is apt to attempt.

One omission seems to be the lack of any mention of acute pulmonary edema. The section on gynecology, including illustrations, apparently has been lifted rather extensively from Wharton's "Gynecology."

This reviewer particularly recommends the book to specialists, especially those whom Hyman describes as "slit eyed." It may do them good. Other practitioners will find the book very worth while, both for survey reading and for quick reference. B. S. P.

RENAL DISEASES, By E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minnesota. Illustrated with 115 Engravings and 4 Color Plates. Lea & Febiger, Philadelphia. 1946. $7.00.

This excellent monograph is based upon studies of renal diseases by the author during the last twenty-five years. The subject is introduced by Bell's classification of renal diseases. The text is introduced by a chapter on normal histology and normal pathologic physiology of the kidney and these are very well presented. The following chapters discuss the structural changes in the kidneys, the pathologic physiology and clinical signs of each disease very thoroughly. The rationale of treatment is presented without details of therapy. The relation of hypertension to the kidneys is discussed fully and there is a discussion of the toxemias of pregnancy and the renal lesion in diabetes. The text is clearly written and is illustrated by excellent photographs. This monograph should be of value to all interested in the problem of renal diseases. H. C.

DISEASES OF METABOLISM, Detailed Methods of Diagnosis and Treatment. A Test for the Practitioner, edited by Garfield G. Duncan, M.D., Director of Medical Division, Pennsylvania Hospital; Clinical Professor of Medicine, Jefferson Medical College, Philadelphia, Pennsylvania. With Contributions by Walter Bauer, Hugh R. Butt, Abraham Cantarow, Tracy Donald Cuttle, Garfield George Duncan, Frank Alexander Evans, Ferdinand Fetter, Joseph Marchant Hayman, Jr., Martha A. Hunscher, Friedrich Klemperer, Cyril Norman Hugh Long, Perry MacNeal, Edward H. Mason, Max Miller, Louis H. Newburgh, John Punnell Peters, W. D. Robinson, Tom D. Spies, Leandro Maues Tocantins, Abraham White, Alexander W. Winkler. Second Edition, Illustrated. W. B. Saunders Company, Philadelphia and London. 1947. Price $12.00.

For those who are familiar with the first edition, it is sufficient to state that this second edition has appeared, incorporating and evaluating the work of the last five years. For others, the importance of this volume is not described easily with the use of many superlatives.

Disturbed metabolism currently is receiving the recognition which it has always merited, not only in the so-called diseases of metabolism, but also in most medical disorders. It is also a matter of keen interest

to the surgeon. The enormous quantity of reports has reached such magnitude that the simple contemplation of the literature is suffocating. A distinct sense of relief is associated with opening this volume, prepared by an imposing group of contributors. One feels that the importance of recent work has been balanced and weighed and presented in as simple a fashion as possible. The editor has skillfully arranged for a strong linkage between the experimental objective facts and the clinical problem. It is the accomplishment of this linkage which imparts to the book its most satisfying flavor. The section on "Water Balance" by John P. Peters, and the discussion of "Protein Metabolism" by Abraham White may be expected to pour oil on the troubled waters of indiscriminate sodium restriction, protein hydrolysate usage and starvation diets, since the indication or contraindication for these methods of therapy is to be found only in the particular existing disorder of metabolism. The remainder of the book is equally informative and can be recommended heartily for any who feel they know less than they should know about the intricacies of human metabolism.

C. J. S.

Diseases of the Chest, With Emphasis on X-Ray Diagnosis, By Eli H. Rubin, M.D., F.A.C.P., F.C.C.P., Attending Physician, Division of Pulmonary Diseases, Montefiore Hospital and Country Sanatorium, New York; Visiting Physician in Tuberculosis and Physician-in-charge, Chest Clinic, Morrisania City Hospital, New York. The Principles of Surgical Treatment by Morris Rubin, B.A., M.D., Assistant Visiting Surgeon, Triboro Hospital and Morrisania City Hospital, New York; Formerly Chief, Thoracic Surgical Section, Sixty-Ninth General Hospital, Assam, India. 355 Illustrations with 24 plates in color. W. B. Saunders Company. Philadelphia and London. 1947. Price $12.00.

This book, written primarily for the clinician, serves its purpose well. It deals with all of the phases of the subject, presenting x-ray and laboratory methods of diagnosis and the pathogenesis of pulmonary disease. A section of the book is given over to a discussion of operative procedures for chest conditions, thus completing the armamentorium of knowledge essential to the chest specialist.

The clinical portion of the book is portrayed excellently, describing physical signs and symptoms; it is replete with case reports illustrating clinical observations. Fully one fourth of the book is given over to pulmonary tuberculosis.

Since x-ray diagnosis forms such a prominent part in chest diagnosis, it has been well developed in the book giving clear concise descriptions of the x-ray manifestations of the various diseases of the lung and pleurae.

The laboratory tests pertinent to diagnosis of pulmonary diseases are clearly described and the significance interpreted. Twenty-four plates in color serve well to illustrate the pathology of the chest diseases and to correlate the pathology with the clinical and roentgenologic aspects. The surgical section, although relatively short, furnishes a good insight into the conditions in which surgical methods are of value and gives an idea of the ultimate prognosis.

The book is clearly written, well organized and profusely illustrated with diagrams, roentgenograms and other photographs. Full page color plates illustrating pathologic conditions add greatly to the effectiveness of this phase of the work.

The book is unique in the effectiveness of its correlation of the clinical with the roentgenologic and pathologic aspects of chest diseases. It should be of great value to the roentgenologist and pathologist alike on this account. Surely, a clinician could hardly afford to be without it.

The publisher has done a characteristically fine job in publication of the book; the clear reproduction of illustrations and roentgenograms and especially of colored pathologic plates.

L. R. S.

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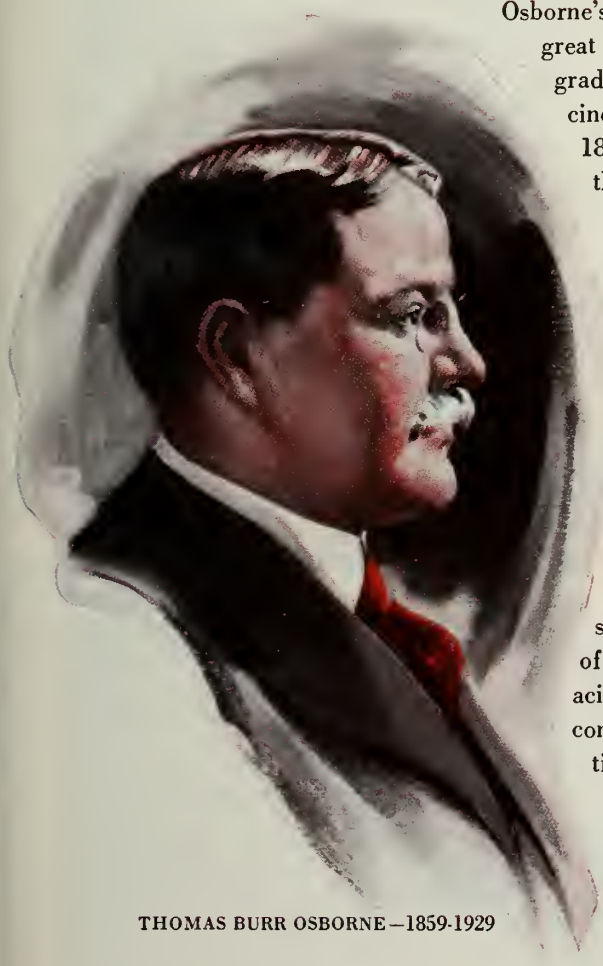
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*"Allergy in Practice," Feinberg, S. M., Second Edition: 1946, Year Book Publishers, Chicago



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*Feinberg, J.A.M.A. 132:702, 1946

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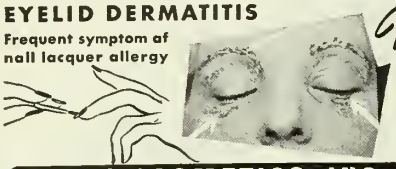
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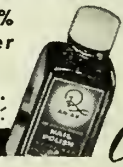
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INDEX TO ADVERTISERS

Abbott Laboratories 606
Ar-Ex Cosmetics, Inc. 626
Arlington Chemical 619
Ayerst, McKenna & Harrison 559

Bilhuber-Knoll Corporation 620
Borcherdt Malt Extract Co. 626
Borden Company 615

Camel Cigarettes 561
Camp, S. H. & Company 616
Chicago Medical Society 565
Ciba Pharmaceutical Products, Inc. 623
Ciba Pharmaceutical Products, Inc. ..... Insert
Cook County Graduate School of Medicine 618

Duncan Laboratories 629

Faith Hospital 622

Glenwood Sanatorium 565
Gradwohl School of Laboratory Technique 628

Hamilton-Schmidt Surgical Co. 626
Hanger, J. E., Inc. 628
Harrower Laboratory 610

Isle, W. E., Company 622

Lilly, Eli & Company ..... Insert
Lov-e Brassiere Co. 624

M & R Dietetic Laboratories, Inc. 627
Major Clinic Association 557
Massachusetts Indemnity Co. 625
Mead Johnson & Company 632
Medical Protective Company 570
Merck & Company, Inc. 569
Milwaukee Sanitarium 595
Miscellaneous Announcements 630
Mullen Ambulance Co. 622

National Dairy Products Corp. 556
National Drug Company 567
National Pathological Laboratory 625
Norbury Sanatorium 620
North Shore Health Resort 628

Parke, Davis & Company 554, 555, 631
Physicians Casualty Association 625
Pogue, Mary E. School 626
Producers Creamery Company 605

Quincy X-ray and Radium Laboratories 626

Ralph Sanitarium 568
Robinson Clinic 622

Schmid. Julius, Inc. 566
Searle, G. D. & Co. 593
Smith-Dorsey Co. 601
Smith, Kline & French Laboratories 603
Spencer, Inc. 605
Stearns, Frederick & Co. 613
Stokes Sanitarium 630
Swift & Company 597

Upjohn Company 562
U. S. Brewers Foundation, Inc. 599
U. S. Savings Bond 621

Wallace Sanitarium 622
Wander Company 564
Washington University School of Medicine 618, 630
Winthrop Chemical Co. 563
Worrell, Dorothy 630

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MEDICAL science has discovered many interesting things about allergy.

If today you tell your doctor that you suffer from asthma, sneezing attacks, or itching eyes, one thing he considers is the possibility that you may be allergic—which means that you may be sensitive to some substance which causes no trouble for most people.

In discovering this offending substance (known as an allergen), your doctor acts as a detective. He may ask detailed questions about the time of your attacks, where they occur, the furnishings of your home, the food you eat.

Such questions may give him clues to the nature of your trouble. If your attacks come, for instance, in the late spring or summer months and last till the first frosts, he will suspect that your trouble is due to some pollen, that you may have some form of "hay fever."

In other forms of allergy, it is not so easy to track down the offending substance. If your case is not clear-cut, your doctor must consider hundreds of possibilities.

A few grains of mustard can make some people violently ill. A man can be sensitive to his wife's face powder, or to dog hair, or grass pollen, or to the cattle hair in the mat under a rug.

Simple skin tests are often used to reveal the offending substance. Drops of various extracts—of pollen, foods, and other substances—are injected into the skin or put on skin scratches. If you are sensitive to the substance being tested, a swelling will usually develop within a few minutes.

Once a doctor has found what causes the allergic reaction—by means of the history of the case supplemented by skin tests—he will prescribe treatment according to the nature of the patient's sensitivities.

If the patient is allergic to a particular food, the easiest solution is to avoid the food. If his sensitivity is to feathers, the substitution of a fibre pillow for a feather one may bring surprisingly effective relief.

If the allergen is house dust or pollen, or something else that cannot be easily avoided, a series of inoculations may be suggested.

Some people, however, do not respond to this type of treatment, or are sensitive to too many different things to make inoculations a practical procedure. New chemical drugs—developed to control allergic reactions in certain types of allergy—are showing promise. They are to be used, of course, only under the direction of a physician.

SEE YOUR DOCTOR. If you suffer from recurring and unexplained attacks of sneezing, skin rashes, or asthma, see your doctor. In allergy, as in other medical problems, your physician can give you more help today than ever before.

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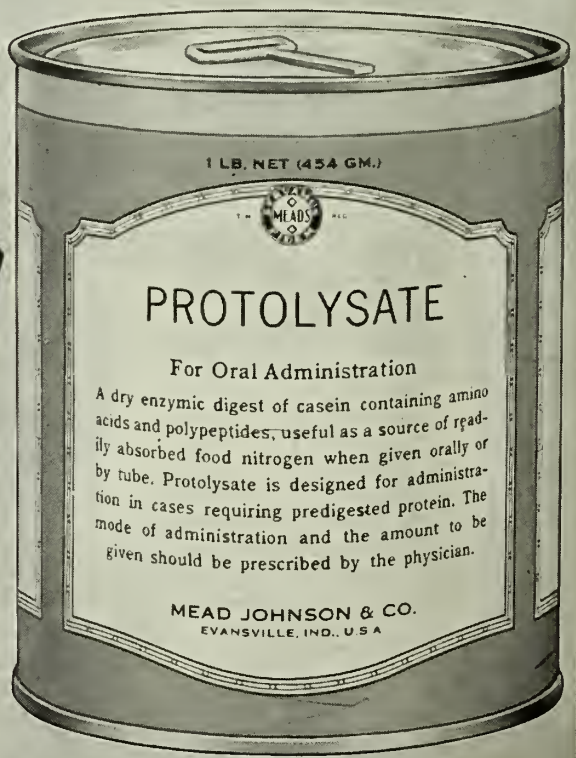
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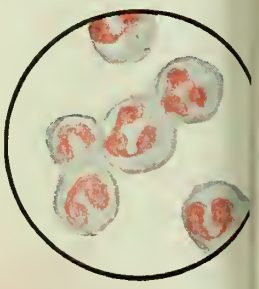
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(Contents Index Page 637)

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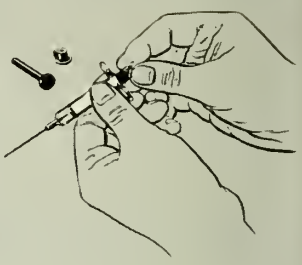


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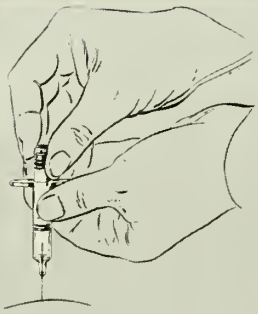
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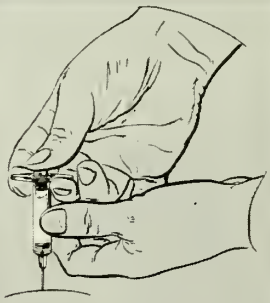
1 The pratective needle sheath is remaved by a twisting matian, expasing the sterile 20-gauge needle. The sheath also serves as the syringe plunger.



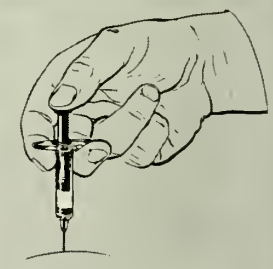
2 Diaphragm end af cartridge is then dipped in an antiseptic salutian and cartridge is inserted inta syringe barrel just ta paint af inner needle.



3 Needle is naw inserted inta muscle inta which injection is ta be made and cartridge is withdrawn slightly to determine if needle end is in a vein.



4 If vein has not been entered, cartridge is farced inta end of barrel lumen, causing inner needle to pierce cartridge diaphragm and ta establish cammunicatian with the ail and wax mixture.

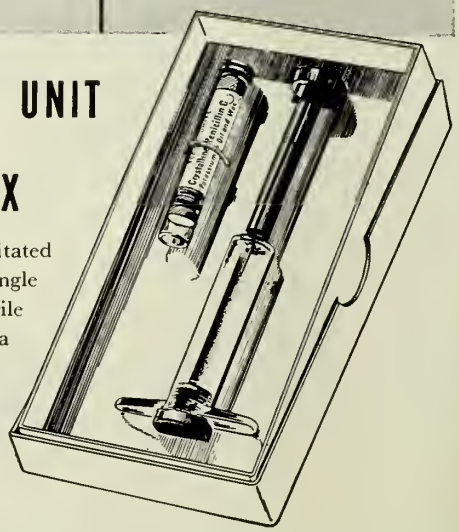


5 Plunger (needle sheath) is naw inserted inta cartridge. Pressure on end of plunger serves to expel cantents af cartridge into muscle ar subcutaneaus tissue.

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CONTENTS

Surgical Treatment of Intervertebral Disk Lesions of Veterans. Robert D. Woolsey, M.D., St. Louis, and Kenneth B. Coldwater, M.D., Jefferson Barracks, Mo. 651

Traumatic Delayed Rupture of the Spleen. Leo H. Pollock, M.D., Kansas City, Mo. 654

Tularemic Pneumonia. J. A. Ossman, M.D., and E. R. Bohrer, M.D., Jefferson City, Mo. 659

Surgical Removal of a Deep Accessory Urethra. W. F. Melick, M.D., St. Louis..... 661

Case Report of Barnes Hospital. Robert J. Glaser, M.D., Editor, St. Louis 664

Tumor Seminar. Arthur Purdy Stout, M.D., New York, N. Y.—

Undiagnosed Tumor of Astragalus 674

Giant Cell Tumor of Tibia..... 675

Carcinoma (Hepatoma) of Liver 676

Sacrococcygeal Chordoma 678

Adenoma of Bronchus 679

Bronchial Epithelial Hyperplasia and Metaplasia With Extension Into Alveoli Simulating Alveolar Carcinoma 680

The Diagnosis and Treatment of Brain Abscess. Francis A. Carmichael, Jr., M.D., Kansas City, Mo. 684

Abstracts and Digests—
A Pathologist Looks at TB 688

Book Reviews 689, 697

Editorials—
Care of Veterans by Private Practitioners..... 691

Medical Education in the United States..... 691

Kansas City Southwest Clinical Society to Hold Silver Anniversary Conference 691

News Notes 692

Miscellany 692

Society Proceedings 692

Commercial Announcement 710

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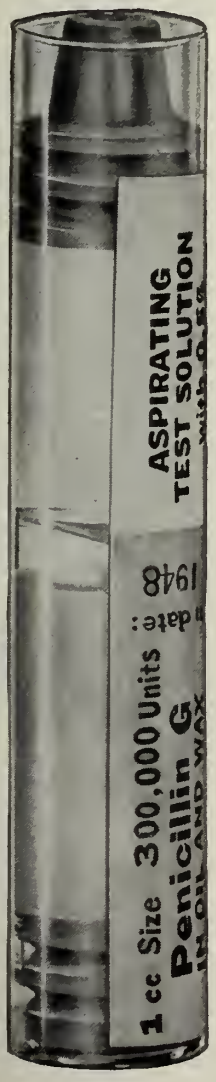
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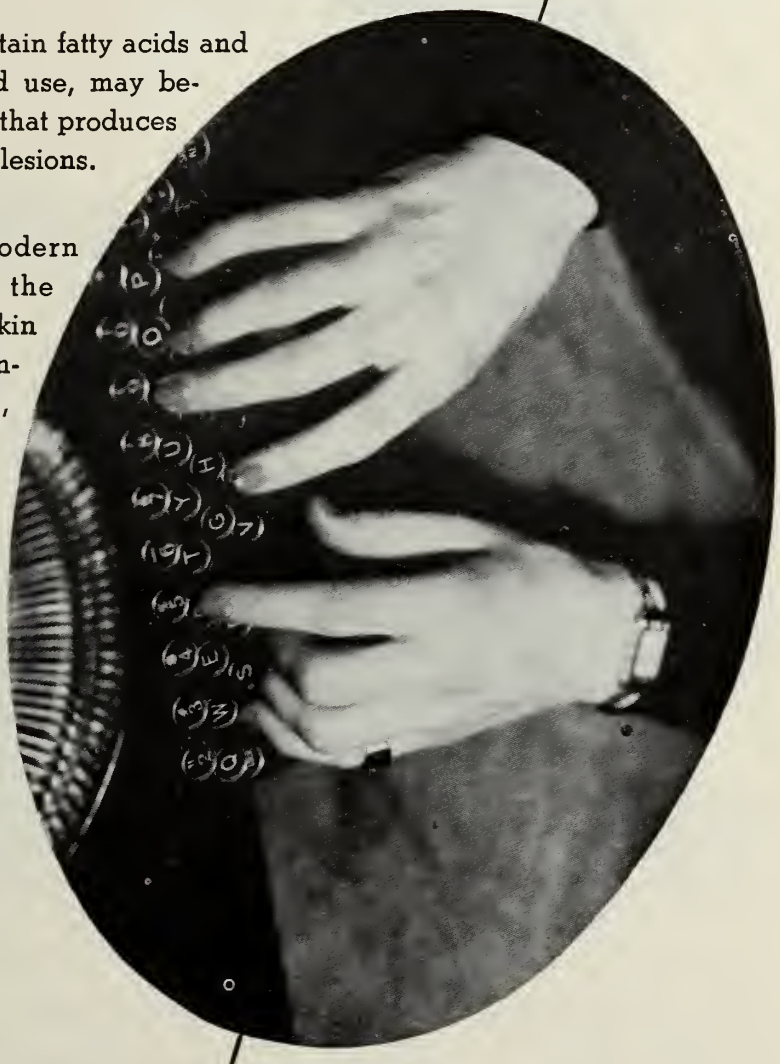
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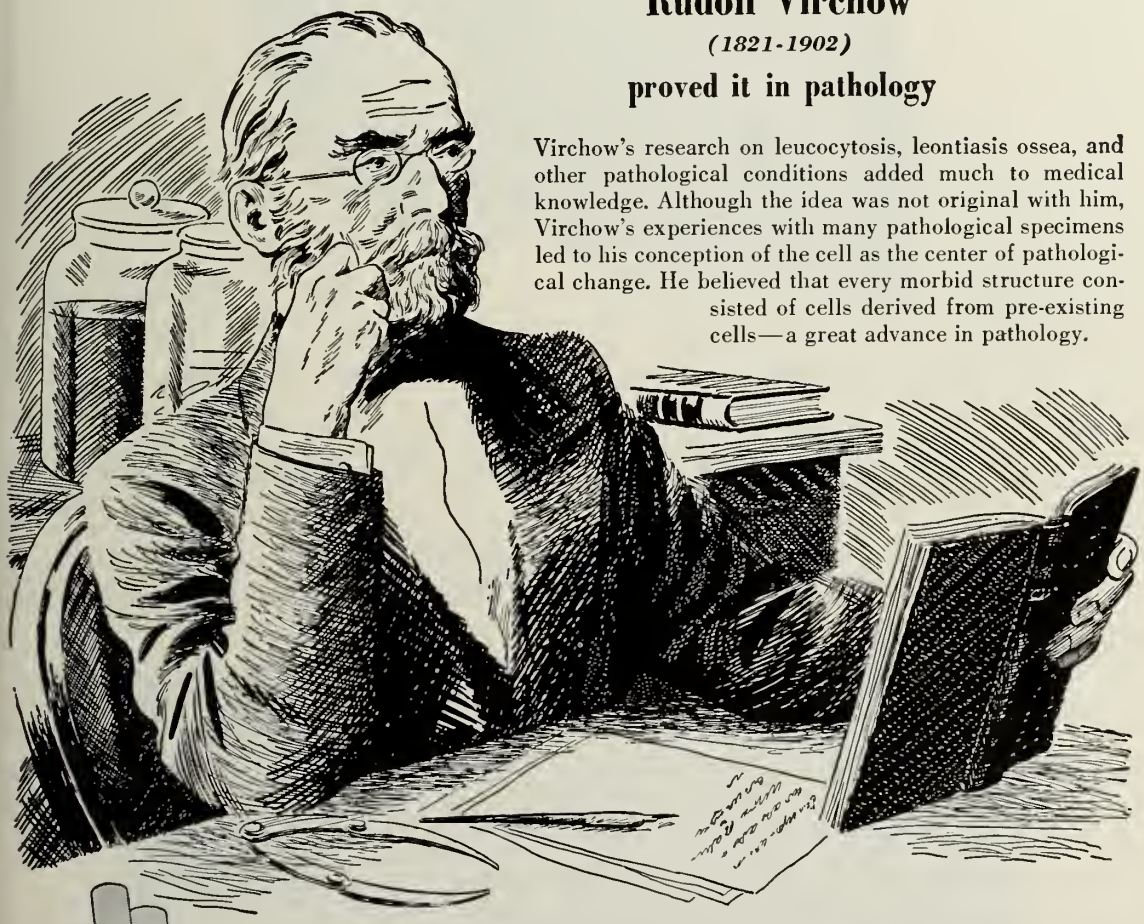
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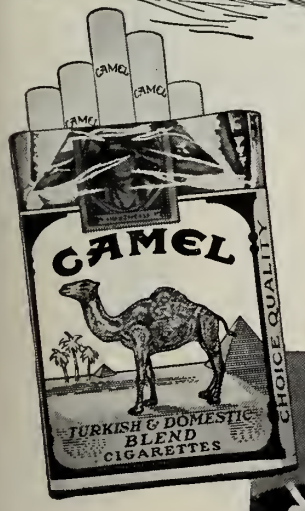


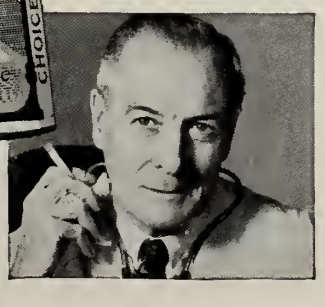
Virchow's research on leucocytosis, leontiasis ossea, and other pathological conditions added much to medical knowledge. Although the idea was not original with him, Virchow's experiences with many pathological specimens led to his conception of the cell as the center of pathological change. He believed that every morbid structure consisted of cells derived from pre-existing cells—a great advance in pathology.

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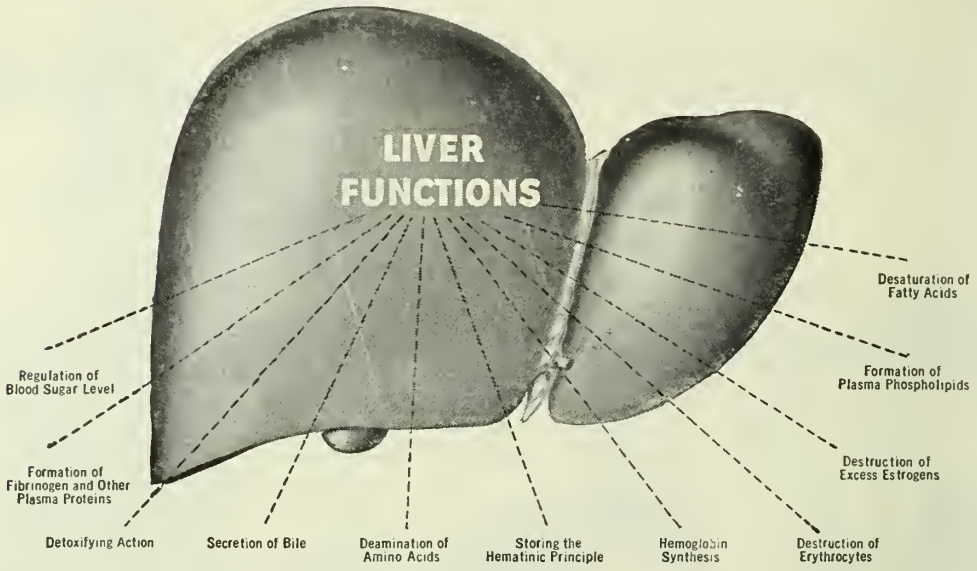


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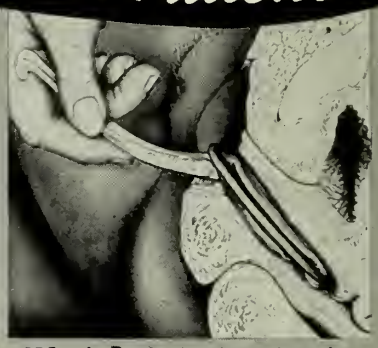
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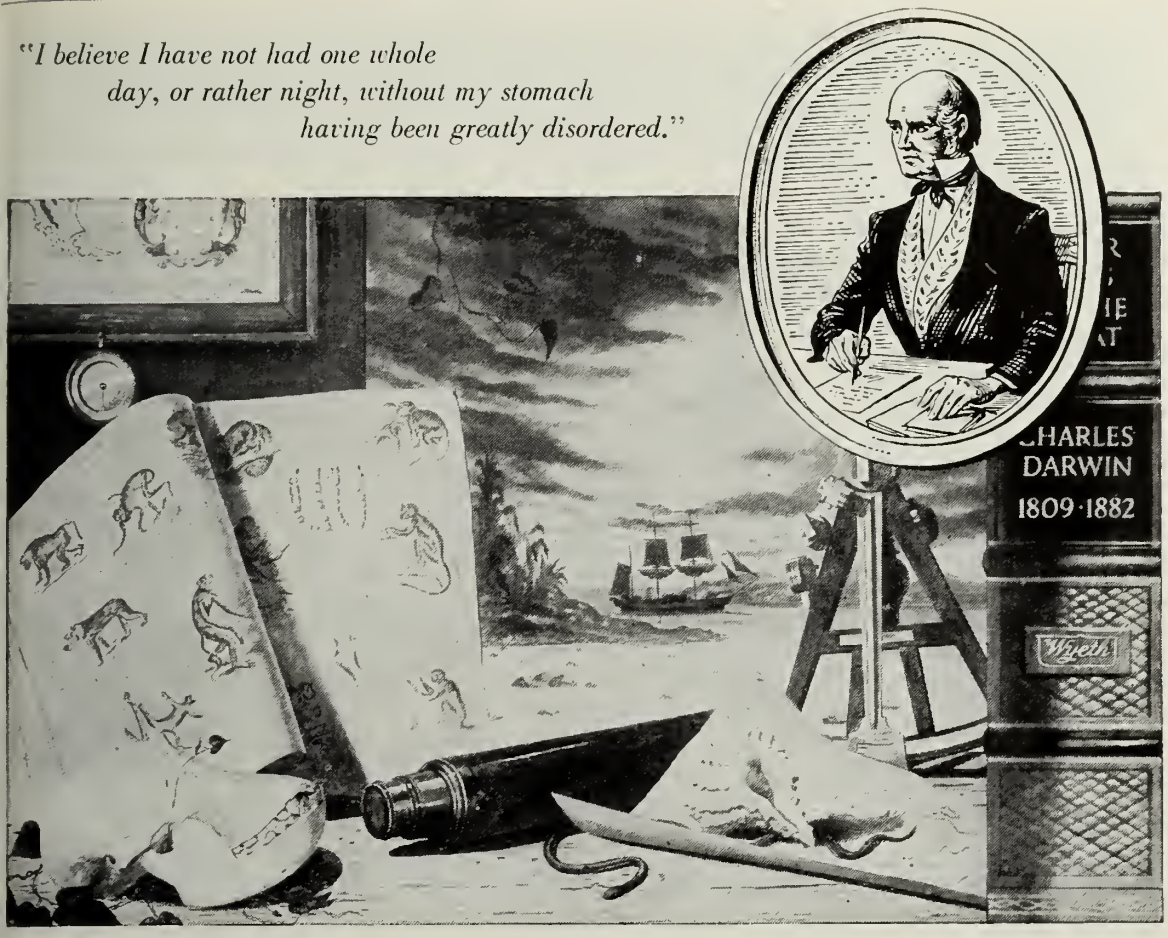
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SURGICAL TREATMENT OF INTERVERTEBRAL DISK LESIONS OF VETERANS

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During the twelve years that have passed since Mixter and Barr presented their pioneer work on rupture of the intervertebral disk with herniation of the nucleus pulposus, many series of cases have been presented in the medical literature. There has been much conflict of opinion on many phases of the diagnosis and treatment of this condition. Military surgeons were disappointed notably in the results of treatment of ruptured disk by any method, and the majority of soldiers so diagnosed ultimately were given a medical discharge from the military service. Early in the course of the war, many were treated by operation without preceding myelographic study. The results were not particularly good. Later, directives from the Office of the Surgeon General stipulated the use of contrast media before surgical procedure. Exact procedures to be used in operative treatment were not stated. Few ruptured disks were treated surgically in the overseas theaters and patients with this diagnosis were returned to the United States for further study and treatment. During the later months of the war, directives discouraged the surgical treatment of patients with ruptured disks incurred before entry into the Armed Services. These events corresponded to the well-recognized situation in cases of back injury in which industrial compensation is involved, i. e., that such compensation should be determined and paid before any operative treatment is carried out. The experiences of military surgeons were in accord with this principle. It became obvious that unless the individual was of an extremely stable and well-integrated psychologic character, the chances were few of obtaining a good result from a major operation such as a laminectomy. Neurosurgeons and medical boards found it necessary to evaluate the psyche of the patient as critically as his physical signs before recommending surgery. Hence, many bona fide sufferers from herniated nucleus pulposus were discharged from the services for chronic back strain or psychoneurosis; these patients are now appearing in the Veterans Administration Hospital for treatment. Now that the war is over, the picture in this same group of patients is changed drastically. This paper is a preliminary report on the diagnosis and treatment of veterans with ruptured disks in a Veterans Hospital during the last eight months.

During this period, thirty-three patients with this diagnosis have been operated on. A control group of fifteen patients has been operated upon by one of us (Woolsey) privately during the same period, using the same diagnostic criteria and operative procedures. This makes a total of forty-eight patients in all.

SYMPTOMATOLOGY

The chief complaints of these patients are pain in the lower back, with radiation to the hip, thigh or leg, aggravated by coughing, sneeezing or straining at stool. The duration of these complaints has ranged from six months to four years, the average being eighteen months. The onset of the symptoms has been related to some incident such as lifting a heavy object, a fall on the buttocks or direct trauma to the back in all but a few instances. In these, the pain began without any recognized accidental cause. Characteristically these symptoms have been recurrent with increasing frequency and intensity of pain and relative comfort between attacks. Increasing disability has rendered patients unable to work or to be out of bed except for the use of bathroom facilities. Radiation of the pain into the sciatic nerve or its cutaneous distribution has been a late symptom in the majority of patients. Only a few have experienced coincident back and sciatic

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pain at the time of the initiating trauma. Usually, days, weeks or months, and in one case four years, elapsed between the onset of the back pain and the appearance of "sciatica." Patients with sciatic symptoms often volunteer the information that the lower portion of the involved leg goes to sleep. In this small series, there have been no instances of cervical disk protrusions. All of our patients have had fourth or fifth lumbar herniations.

PHYSICAL SIGNS

Examination usually shows a rigid back, a flattening of the lumbar lordosis, and a lumbar scoliosis away from the involved side. When the patient sits, he favors the affected side and rests his weight on the opposite buttock. Forward bending is limited by pain, and the patient usually can bend lateralward with greater ease and to the uninvolved side than to the side of the disease. Tenderness over the protruded disk is often present and found about an inch lateral to the spinous process. The sciatic nerve is tender to deep palpation at the sciatic notch, down the thigh, or in the popliteal fossa. Straight leg raising or any maneuvers stretching the affected sciatic process produces pain. The ankle jerk commonly is absent in fifth lumbar protrusions. Fourth lumbar protrusions usually produce no effect on this reflex. Sensory hypesthesias are common and are indicative of the level involved. It should be emphasized that the level of the protrusion cannot be absolutely determined by means of neurologic examination.

A word as to the method of testing sensory hypestetic areas is important. If successive pin pricks are made up and down the leg, the patient rarely will differentiate a sharp level on successive tries. If, however, the pin or sharp object is stroked rapidly over the suspected skin area, a sharp differentiation will be made when the pin passes onto a normally appreciative skin. The outer surface of the calf and dorsum are supplied by the fifth lumbar and first sacral divisions, while the inner aspect of the calf and dorsum of the foot are supplied by the fourth lumbar segment. Hypesthesias in the fourth disk herniations are not particularly common.

ROENTGEN RAY FINDINGS

Occasionally narrowing of the involved interspace will point to the level of pathologic involvement in plain roentgenograms, but these are usually negative. We have used "pantopaque" contrast myelography in all instances before surgery. A spinal puncture is performed in the fourth and fifth lumbar interspace and a Queckenstedt test performed to rule out block in the spinal canal at a higher level. Spinal fluid is collected for cell count and total protein and from 3 to 5 cc. of the contrast medium is then instilled intrathecally. The patient is examined while lying on his abdomen under the fluoroscopic screen. If a filling defect is found, spot films are taken and the pantopaque is allowed to remain in the canal until after operation. A second fluoroscopic examination and aspiration of the contrast medium has been performed about two weeks after operation. We have observed no complications from the presence of pantopaque other than immediate post-puncture headaches that have disappeared following operation. Indeed, one patient in whom no defect was found has elected to retain the medium, as he is certain that he has a protruded disk and that a defect will appear. Four months have elapsed and no adverse reactions have appeared. The disk patient may experience considerable relief following lumbar puncture.

It must be emphasized that a filling defect may be anything from an obliteration of one of the nerve roots to an almost complete block of the canal where the oil will flow past the obstruction only when the patient is tipped to an extreme angle (e. g. fig. 1). A complete block is considered evidence favoring the presence of a tumor rather than a herniated disk. Postero-anterior films and oblique films are important as permanent records. We consider lateral films to be less important. We have had no difficulty in removing the pantopaque except in one patient whose extreme hypertrophic arthritis made lumbar puncture very difficult.

SELECTION OF PATIENT FOR OPERATION

The surgical removal of a herniated nucleus pulposus is not a formidable procedure for younger individuals as were most of the patients in this series. We have limited this procedure to patients who have been totally disabled and who have a demonstrated lesion by myelography and who do not respond to conservative treatment. As previously noted, these patients present a history of from months to years of increasing pain culminating in complete disability and economic liability. We have operated on three patients who did not have filling defects by myelography. A good result was obtained in one, and a fair result in two. Good immediate results have been secured in all with myelographic defects. We feel that if operation is limited largely to patients with demonstrable lesions, results with this procedure will not be so conflicting as the literature would indicate.

OPERATION

We have used Love's procedure and have rarely found it necessary to remove any of the laminar bone. This technic is simple and easily accomplished and produces minimal structural disturbance. A standard midline incision is made and muscles reflected subperiosteally. The interlaminar ligament is reflected and the dura and nerve root retracted medially by a modified tonsil pillar retractor. In about one fourth of the cases the posterior longitudinal ligament was found ruptured and the tip of the herniating nucleus protruded through this opening. In some cases almost the entire nucleus will have prolapsed into the spinal canal. In the majority, however, the posterior longitudinal ligament on the anterior wall of the spinal



Fig. 1. Pantopaque myelograms showing filling defects rang ng from an obliteration and elevation of the nerve root to an almost complete block.

canal will conceal the rupture of the annulus fibrosus. Incision of the posterior longitudinal ligament and pressure upon the anterior wall of the spinal canal medially usually will cause the nucleus to protrude. A curette or forcep is introduced and the nucleus pulposus removed. Usually there is a single, large piece of nucleus lying just beneath the ligament. When this is found, a good result almost invariably is assured. If the patient has pain in both legs, then both sides of the indicated disk should be explored. Only one central protrusion was found in this series. We have done two modified Hibbs fusions in which fifth lumbar vertebra appeared to be unstable.

POSTOPERATIVE CARE

These patients are allowed to stand to void on the day of operation if necessary. They are out of bed on the first to third postoperative day and are encouraged to walk about as they wish. They usually are discharged from the hospital in from seven to fourteen days. We feel that if the operation has been performed correctly at the correct level the relief will be immediate and it is indeed difficult to keep these patients in bed. We have had no postoperative complications and no catheterizations have been necessary. We have advised them to do no heavy labor for three months after their discharge from the hospital.

ANESTHESIA

We have used spinal novocaine and pontocaine routinely. Second instillations of these drugs may be made directly through the exposed dura during the operation if necessary.

RESULTS

It is too early to give positive statements as to the final results. However, the immediate results have been so much better than those that both of us have seen during the last four years of military service that we feel there must be some explanation lying either in the selection of the patient for surgery, the attitude of the patient, or in the details of operative treatment and early postoperative ambulations. The relief from sciatic pain has been immediate and permanent. Hypesthesia has persisted for varying lengths of time but has gradually faded. Back pain and postural abnormalities have been relieved. Most of our patients are resuming normal occupations in about three months.

We feel that one prime difference is in the incentive at the present. The procedure is little different from that used in the various clinics we have visited in and out of the service. We have had two fair results. The others, we and the patients consider excellent. Such results, we believe, are based on the careful selection of cases for length and severity of symptoms, demonstrable myelographic defects and minimal operative trauma.

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TRAUMATIC DELAYED RUPTURE OF THE SPLEEN

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The syndrome of ruptured spleen is a definite and pathognomonic one, although it may not be obvious at first inspection. There is a variety of symptoms which may vary in evidence depending on the type and extent of hemorrhage. A penetrating wound or a heavy direct blow may cause shock or death within an hour. A local, light impact or indirect trauma, as a fall, may cause immediate or suspended, mild and bizarre abdominal complaints. It is imperative to recognize the pathologic condition early and to do a splenectomy to save the patient.

The following report of traumatic delayed rupture of the spleen conforms to a "typical" syndrome. The diagnosis was apparent to a few who had seen such a case before. Others felt that the lack of external evidence of injury could not be attended by important internal pathology.

REPORT OF CASE

J. B., white male, aged 33 years, first lieutenant in Army, entered the hospital July 4, 1946, at 8:00 a. m. He had been in perfect health. At 11:00 p. m. July 3, he accidentally stumbled against a 4 foot picket fence. The front of his left chest was lightly bruised but he had no special discomfort. He felt perfectly well and went to bed at midnight. At 3:00 a. m. he was awakened by severe pain in the front of the left side of his chest. This was referred to the left shoulder area on deep inspiration. He soon noted pain and tenderness under the left rib margin. He was not able to sleep and went into the hospital at 8:00 a. m. There had not been any fainting, dizziness, nausea, vomiting, weakness or sweating. Past history was normal except for a fractured skull in Europe in 1942 from which, after being unconscious for half an hour, he recovered completely. He had not had any malaria or any acute infectious disease.

The patient walked into the hospital. He was 5 feet, 10 inches tall and weighed 145 pounds. He had an apprehensive appearance. The skin was cool and slightly moist, but not clammy. He leaned to the left and held his hands protectively over the splenic area. He talked in a hesitant voice due to stabs of pain under the left rib margin and across the chest at the nipple level. He was cooperative and could not understand why he had the pain when he felt all right otherwise. Temperature was 97 F., pulse 60 per minute, respirations 18 per minute.

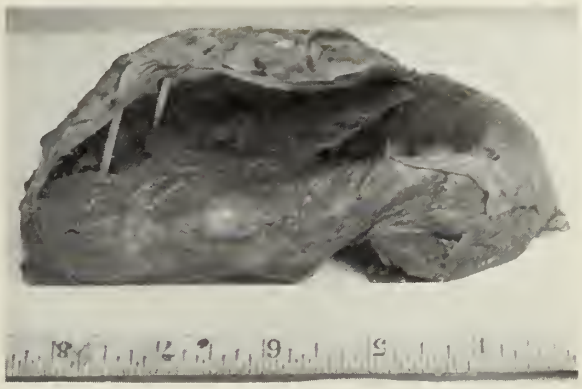
The pertinent findings were: Head—pupils were equal in size. The conjunctiva were pink and were slightly injected at the inner canthi. Chest—there was decreased motion of the left costal margin on respiration. He could not breath deeply because of stabs of pain under the left costal margin and across the chest. Every few minutes, he would catch his breath because of the pain across his nipple level and in both supraclavicular fossae. Deep breathing accentuated this discomfort. Just below the left nipple, there was a ¾ inch superficial bruise of the skin. There was no evidence of fracture or tenderness of the ribs. The chest was normal to auscultation. The diaphragm had good excursions and was not elevated. There was no cough or expectoration. Heart—the blood pressure was 100/65. Pulse was 60 per minute, of fair quality and regular. The heart sounds were normal. Abdomen was flat. There was tenderness and splinting of the muscles of the epigastrium and of the upper left quadrant. The rest of the abdomen was soft and not tender. The peristaltic sounds were subdued but were present over the whole abdomen. The liver dulness was intact on percussion. Even light percussion was not attempted over the spleen because of the danger of aggravating trouble in the organ. Rectal—no tenderness or fullness present. Genitourinary—no tenderness or spasm in the costovertebral angles.

Clinical Course.—He moved about easily in bed and the freedom increased during the day. Laboratory finding on admission: red blood cells 4,200,000, Hgb. 13.6 gm, white blood cells 22,000 with 94 per cent polymorphonuclears and 6 per cent lymphocytes, blood type A, hematocrit 45. Urine was clear, orange yellow in color, specific gravity 1026; microscopic, albumin and sugar were negative. At 6:00 p. m. the white blood count was 19,000 with 93 per cent polymorphonuclears and 7 per cent lymphocytes. Urine was clear except for occasional white blood cells and hyalin casts. Roentgen ray plates of the abdomen, chest and diaphragm were reported as follows: "The hilar markings are normal. The mediastinum and heart are not displaced. There is no fluid in the costophrenic angles. The domes of the diaphragm are smooth and not elevated. There is no evidence of herniation. The kidney outlines are smooth. There are no unusual gas shadows. There is no evidence of fluid or blood in the abdominal cavity. There are no calcific densities along the urinary tract or in the gallbladder area. The outline of the spleen cannot be made out due to gas shadows. Diagnosis: "No abnormal findings." By the end of twenty-four hours, the sharp cutting pain in the upper left quadrant and across the chest had disappeared so that he was able to breathe deeply; nor did breathing cause any supraclavicular pain after that. The morning of July 5, the laboratory reports were: red blood cells 3,500,000, Hgb. 11 gm.; white blood cells, 8,700 with 68 per cent polymorphonuclears and 32 per cent lymphocytes, hematocrit 33 per

cent. Report of roentgen ray study of the abdomen follows: "The finding are the same as reported previously." His temperature was about 98 F. until July 6 when it rose to 100 F., pulse 78 per minute. At no time did he have any cough, hemoptysis or hematemesis. He felt comfortable and was out of bed for bathroom privileges because he "got tired lying in bed." By this time, the epigastric spasm and tenderness had disappeared leaving only slight spasm and tenderness under the left costal margin in the anterior axillary line. Roentgen ray studies on July 7 were reported as follow: "There are no significant findings. The intestinal gas shadows are not dispersed as might be present with fluid or blood. Diagnosis: Nothing abnormal." Urine was yellow in color, specific gravity 1022, albumin and sugar negative, with occasional white blood cell and hyalin casts on microscopic examination. Icteric index was 7. By July 8, his temperature and pulse had been normal and the blood pressure about 108/70 for one and one-half days. He was out of bed freely and felt well except for the soreness and tenderness over the splenic area. The red blood cells were 3,200,000, Hgb. 11.5 gm.; white blood cells 7,500, platelet count 284,000, hematocrit 41 per cent, sedimentation rate was 28 mm. per hour. He was on a soft diet all the while and at that time wanted to be discharged from the hospital. The main diagnosis was always considered to be a ruptured spleen. He felt so well and had such minimal symptoms that it was thought possible that he might recover without operation. It was kept in mind that injuries to the chest often are accompanied by indications of an abdominal emergency. There was no evidence of injury severe enough to fracture a rib, nor was there any indication of fluid or blood in the pleural space. It also was known that one might have a large abdominal hemorrhage without much reflection in the blood pressure, pulse or falling blood count. Abdominal tap was performed July 8. Each of the two attempts revealed several drops of dark brown blood in the peritoneal cavity. The patient had been examined every day for shifting dulness, but the findings were inconclusive. The abdomen stayed flat and had mild peristalsis throughout. Two stool specimens were negative for occult blood.

He was operated on July 8, 1946, under anesthetic of nitrous oxide, oxygen, ether. "Findings: The abdominal cavity contained about 1,200 to 1,900 cc. of reddish brown blood. The capsule of the diaphragmatic surface of the spleen was completely elevated due to a large subcapsular hematoma. At one point, the capsule was torn, resulting in free bleeding into the abdomen. There were several lacerations in the pulp. The spleen was larger and softer than usual and there were moderate moist adhesions to the diaphragm. The stomach, pancreas and visible small intestine were normal." "Procedure: Blood transfusion was started and 10 minims adrenalin were slowly injected subcutaneously. Upper left rectus muscle splitting incision was made. The lateral half of the rectus was transected. The phrenicolienal ligament and soft adhesions were liberated. Effort was made to compress the spleen manually. The pedicle of the spleen was approached through the gastrocolic omentum and the gastrolienal ligament. The short gastric vessels were divided in the gastrosplenic ligament. The blood supply was clamped and ligated in sections, using No. 0 chromic ties. The spleen was removed. The omental openings were closed. Wound was closed in layers without drainage, using continuous No. 0 chromic suture for the peritoneum. The fascia and skin were closed with interrupted figure of eight stay sutures of fine stainless steel wire. During the operation, he was given 600 cc. plasma and 1,000 cc. whole blood transfusion. It was necessary to remove about 800 cc. of the free abdominal blood because it obscured the operative field. Condition of patient was good after operation."

Specimen examination: "Gross: The specimen consists of a formalin hardened organ said to be a spleen



LEGEND

Fig. 1. Side view of the ruptured spleen. The site of the large subcapsular hematoma is indicated by the elevated capsule. The laceration in the splenic pulp is marked by the applicators. The capsule of the remainder of the diaphragmatic surface is detached.

from which the capsule is already stripped over most of the organ. It measures 14 by 9 by 3 cm. At the hilar region, there is a linear laceration extending from the hilus for 5 cm. almost to the border of the organ. On the surface of the spleen, there is a depression from which the capsule is torn, occupying the lower 11 cm. of the organ and extending to the lacerated region previously described. According to the operative note, this is probably the region where there was a hematoma under the capsule. On cut section, there is a hematoma occupying the entire diaphragmatic surface and it measures up to 1 cm. in thickness. The splenic substance itself is not particularly remarkable. There are several scattered hematomas measuring up to 5 mm. in diameter in the splenic pulp. Two sections are taken for microscopic study."

Microscopic Study: "A number of sections fail to reveal any specific lesions in the spleen. The architecture is normal with somewhat dilated sinusoids. Special stains fail to reveal malarial parasites and, in fact, there is no or very little pigment to be seen even in the H and E stains first made. There is no fibrosis and the only change that can be seen outside of sinusoidal dilatation is a nonspecific hyperplasia of the cellular element. This is evidenced by increased number of lymphoblasts which are collected in small islands and cords in the pulp. This is the picture of acute, splenic tumor. Diagnosis: Acute splenic tumor with traumatic rupture and surgical removal."

Postoperative course.—He was started on penicillin 30,000 units every four hours in order to abort any infection in the abdominal blood or pleural space. Also, prostigmin, 1 ampule of 1 to 2,000 was given every four hours. While occasional intestinal sounds were heard in the lower abdomen, he had evidence of paralytic ileus, draining large amounts of intestinal contents from the indwelling gastric tube. This contained heavy traces of blood for five days. The abdomen was slightly full, soft, and not tender except in the area of the incision. For two days, the temperature was 101.2 F., pulse 100 to 118. The fever dropped slowly so that it was down to 98 F. and pulse of 86 by July 15. He was given 500 cc. whole blood transfusion during the night after operation and 250 cc. pooled plasma the next day. Because of a hematocrit of 61 per cent on July 13, he was given 500 cc. pooled plasma; and then 500 cc. whole blood the next day. The chest remained clear to physical examination and roentgen plates. From the first day after operation he was encouraged to sit on the edge of his bed, and then to get up. The penicillin was stopped July 14 after he received 1,080,000 units. He had been receiving intravenous amigen, glucose and 1/6 N sodium lactate solutions. His bowels moved spontaneously July 14. Platelet count was 280,000 on the third post-

operative day and 254,000 on the seventh postoperative day with red blood cells 3,030,000, Hgb. 12 gm., white blood cells 13,650, 83 per cent polymorphonuclears and 17 per cent lymphocytes, hematocrit 35 per cent. By the time of discharge to convalescent leave on August 1, his bowel movements were normal. The wound stayed clean and dry. The abdomen remained flat and soft. He was seen at various intervals until February, 1947, and he was able to do military duty and felt perfectly well.

The clinical classification of splenic rupture considers the presence of trauma, the rapidity of onset of sequelae, and whether the involved spleen is normal or in pathologic condition.

Traumatic.—The spleen may be torn by a penetrating wound, by a direct blow to the region and by an indirect force, as a fall.

Spontaneous (nontraumatic).—There seemingly has been no blow to account for the injury. During a severe strain, when the diaphragm contracts violently, marked pressure is applied suddenly to the spleen. This may cause a hyperplastic organ to fracture. Some cases have been reported. However, the incident of trauma may have been a minor one which either went unnoticed or was forgotten.

Immediate.—The injury to the patient is at once followed by sequelae.

Delayed.—The injury is followed by several hours of perfect comfort. There is then an onset of pain and other signs which indicate the time of splenic rupture or of tense distention. Most authors consider under this heading those cases in which the injury is followed by immediate complaints of various intensity. After a quiescent period of about three hours to several months, abdominal complaints become evident. Strictly speaking, these cases should not come under this classification for the immediate pain and other reactions indicate that the spleen ruptured or hemorrhaged at once. The recurrence of discomfort after a quiet period merely indicates renewed bleeding or spread of the old hemorrhage beyond its confines.

In any instance, the spleen may be a normal or a pathologic one. An enlarged and hyperplastic spleen is bruised easily. Spontaneous ruptures most often involve soft pathologic spleens as seen in acute fevers, malaria, infectious mononucleosis, typhoid and typhus fever. In the author's case, the microscopic diagnosis of acute splenic tumor cannot be explained definitely. The patient had felt perfectly well. It is possible that he may have had some illness but was not aware of it. The nonspecific hyperplasia of the cellular elements may be the spleen's reaction to extravasated blood within its substance. It is reported that about 3 per cent of all deaths about Calcutta are due to spontaneous rupture of malarial spleens.[7] The Army Institute of Pathology has on file forty-three instances of spontaneous rupture of the spleen; twenty-two were classified as malarial.[4] Indeed, this complication has occurred in therapeutic malaria.[9]

The incidence of patients with traumatic rupture of the spleen admitted to the hospital is influenced by the number of accident cases seen. Eight patients with traumatic rupture of the spleen without open abdominal wound were admitted among 3,500 accident cases admitted to the Emergency Surgical Service of Public Welfare Hospital of Rosario.[5] It occurred in one of every 666 accidents of all kinds admitted to Harlem Hospital in New York City.[15] At the Ohio State University Hospital, the incidence is computed to be one of every 920 accident admissions of all types.[13]

Anatomy.—The average spleen weighs about 200 grams. It lies high in the upper left quadrant of the abdomen, between the stomach and the diaphragm, protected by the thoracic cage. It is suspended by the phrenicolienal and gastrosplenic ligaments and by its vessels. The splenic artery is the largest branch of the coeliac axis. Of the arteries to the abdominal viscera, it is second in size to the renal arteries. It passes above, behind or even partially within the substance of the pancreas. It divides into two branches before entering the hilus of the spleen. The blood is then dispersed through the sinuses, which are the direct links between the arterial and venous systems.[1] This accounts for the alarming bleeding seen in splenic tears.

The normal spleen has constant rhythmic contractions of from twenty-five to fifty seconds duration. This is reflected in undulations in blood pressure tracings.[1] There are smooth muscle fibers in the trabeculae and capsule. These are activated by autonomic nerve fibers of the coeliac plexus. Contraction of the spleen acts as a regulator of blood circulation. The living spleen is from three to five times larger than when seen at autopsy. Its blood has a higher corpuscular content than the circulating blood. The spleen contracts in hemorrhage, asphyxia, muscular exercise, emotional excitement, carbon monoxide poisoning and under any circumstance in which the oxygen supply to the tissues falls below their requirements to expel the extra quota of blood into the circulation. Under experimental conditions, this does not occur if the splenic nerves are first cut. The intra-arterial injection of adrenalin causes splenic contraction. The spleen has three functions: (1) the final destruction of red cells; (2) the storage of blood; (3) the manufacture of lymphocytes in the lymphoid tissue of the Malpighian corpuscles.[1]

Pathology.—While the spleen is protected by the thoracic cage, it is very vulnerable because of its vascularity. A blow to the left chest, either in front or back, may cause it to bounce against the ribs. This may tear the parenchyma or bruise the subcapsular tissue. A rib may fracture and lacerate the spleen. An indirect force, as by falling, or sudden severe strain, may cause a violent diaphragmatic contraction and forcible descent of the spleen. This more often tears the vessels at the hilus.

Various types of splenic lacerations may occur. There may be a large single one or multiple lacerations of the parenchyma to bisect or fragment the organ. This immediate rupture causes alarming bleeding. There may be small subcapsular lacera-

tions to form intrasplenic hematomas, with or without immediate bleeding into the abdomen. There may be slight bruising of the capsule with slow formation of subcapsular hematoma. As this enlarges, the tension eventually ruptures the capsule to release the blood into the abdominal cavity. These types account for the delayed rupture syndromes. The splenic extravasation may be walled off by the stomach, diaphragm, colon and mesentery. During this period, the patient may have vague upper left quadrant discomfort. A slight strain or minor blow may cause the walled off hematoma to rupture from weeks to months later.[10] There is no reason to believe splenic ruptures have ever healed spontaneously. Large series of autopsies fail to reveal scars as might be formed by healed lacerations.[6, 13]

Diagnosis.—The important symptoms of splenic injury are abdominal pain, spasm and tenderness associated with various indications of internal bleeding. The pain is most often felt in the upper left quadrant of the abdomen. It may be felt in the lower left chest or in the epigastrium. It is usually constant, dull aching or knife-like in character. It is most often associated with tenderness and spasm in the upper left quadrant of the abdomen. It is due to rupture of the spleen, distention of the spleen by blood, or tearing of its capsule to liberate blood. As the hemal flood spreads elsewhere in the abdomen, the area of discomfort may widen. In immediate rupture, there is sudden, marked pain in the area of the spleen. If various symptoms of shock do not set in, the bleeding either has stopped temporarily or, luckily, has diminished. Perhaps there has been only an intrasplenic or subcapsular hematoma formed. The patient then may experience only mild pain and tenderness over the spleen for various interims. The persistence of pain may be due to slight continuous bleeding from the area.

During the quiescent period, the perisplenic hematoma may be walled off by the surrounding organs. This may form a palpable mass. A return of pain, after a free interval, indicates the time the blood breaks through the capsule or through the surrounding adhesions. This may occur from several hours to many months after the injury. One patient was operated on with a diagnosis of appendicitis.[2] As seen in restrospect, the epigastric pain beginning twelve hours after injury indicated the time of splenic rupture. The lower right quadrant pain and tenderness were due to leakage of blood down the right lateral gutter.

As in the author's case, the pain may be referred to the left supraclavicular area (Kehr's sign). This is due to irritation of the left diaphragm. The patient may not appear overly ill. He may bend slightly to the left as if to guard the tender area. Spasm over the spleen is a common sign and is also due to peritoneal irritation. However, the abdomen may be full of blood and yet have findings only in the area of the spleen.

The abdomen usually is not distended, although there are exceptions. This may develop later because of paralytic ileus or aseptic peritonitis. The abdomen may be flat or scaphoid and yet contain up to a liter of free fluid.[12] Shifting fluid dulness may be present, but this is not a reliable sign. With an encapsulated hematoma, an area of dulness may be found over the spleen. However, it is not wise to percuss in such cases because of the danger of initiating or aggravating the hemorrhage. This is probable with a hyperplastic spleen.

The symptoms of blood loss are variable. With extensive hemorrhage, some patients quickly develop shock and die within an hour after injury. Some may have moderate shock and then spontaneously improve for a short time. The pulse may be fast and thready, the blood pressure low. Yet some young people react to bleeding by an initial compensatory elevation of blood pressure. Such a rise, occasionally to 180 or more in a young person should serve as a warning rather than offer assurance of safety.[6] There is a threshold of bleeding beyond which symptoms appear. Blood donors often lose from 500 to 1,000 cc. of blood without any appreciable outward changes. Such a loss into a serous cavity usually causes more reaction. The extent of hemorrhage cannot be judged accurately by the blood pressure, blood count and pulse. This is illustrated in the reported case. Acute anemia may develop rapidly. Initial leukocytosis may range from 12,000 to 40,000. This is not necessarily an indication of infection. Leukocytosis is seen in intraperitoneal hemorrhage, mesenteric thrombosis and even after marked exertion. Other symptoms such as pallor, weakness, restlessness, sweating and air hunger may be present. The temperature usually is normal or subnormal at first. There may be a slight rise after a day.

Physical examination may not reveal any evidence of external injury. There may be a minor bruise in the area of the spleen. A penetrating wound may conveniently offer a clue to the diagnosis. The physician often is lulled into a false sense of security because he is not aware that fatal internal hemorrhage may be developing in the presence of such mild complaints without external evidence of violence. However, alcoholism or associated injuries may be more obvious and thus obscure the picture. Fractured ribs on the left side may be interpreted as being responsible for the distress. Left hemothorax or chest injury may cause referred signs and symptoms to a normal abdomen, simulating intra-abdominal pathologic condition. A short time after my case was seen, another patient, who seemingly had similar complaints, was operated on for a ruptured spleen even though the surgeon knew there were chest injuries. No intra-abdominal pathologic condition was found. Ruptured spleens have been found when operation was for various other erroneous diagnoses as ruptured peptic ulcer, acute appendicitis, ectopic pregnancy, ruptured left kidney and acute pancreatitis. It may be confused with these conditions as well as with frac-

tured ribs, peritonitis, mesenteric thrombosis, pneumonia, left hemothorax and splenic infarct.

The diagnosis may be aided by abdominal puncture to identify intra-abdominal bleeding. This is performed 1½ inch below and to the left of the umbilicus. If it is suspected that blood is running down either lateral gutter, puncture may be performed there. A fruitless result does not indicate the absence of intra-abdominal blood. Vaginal puncture may be tried to reach blood in the cul-de-sac.

Roentgen study may be helpful if the patient is not too ill. There may be a dense shadow in the upper left quadrant which may displace the greater curvature or fundus of the stomach medially or may be better outlined after administering a Seidlitz powder. There may be haziness of the plate due to diffusely spread blood. There may be widening between the loops of bowel. The frequency of fractured ribs with splenic rupture should make one suspicious of the underlying splenic injury.[16] There may be associated fluid in the left costophrenic angle and partial atelectasis. None of these were recognized in my case.

It is said that the diagnosis of ruptured spleen can be confirmed absolutely by the injection of 1,000 cc. of air into the stomach, followed by screen examination.[5] This shows the fluid level from spleen to ribs or other fluid levels in the right hypochondrium. Another valuable sign is dilatation of the stomach with serration of its greater curvature associated with absence of splenic shadow.[11] The cause of the serration remains unproven. These changes are not encountered after splenectomy or in splenomegaly. If a delay of from two to four hours may be risked, thoratrast may be injected intravenously. This will be phagocytized by the reticulo-endothelial cells of the spleen. The lacerations of the spleen then may be evident or roentgenogram.

Treatment.—The only treatment for ruptured spleen is surgery. Splenectomy is the advised procedure. Without operation, the patient will most probably die, the mortality ranging from 86 per cent[13] to 100 per cent.[6] Fifty-one per cent die within the first hour after injury and before operation can be performed. In subcutaneous injuries, the operative mortality ranges from 10 per cent to 30 per cent.[16] Penetrating wounds of the spleen have an operative mortality up to 66 per cent.[16] This may be due to the associated injuries. The results all depend on whether or not the patient has the good fortune not to have a fatal hemorrhage before the condition is recognized and operated upon. The surgeon can not temporize in the presence of mild abdominal complaints. Also, he can not wait until shock is combatted. Operation must be started as soon as the diagnosis is presumed possible. Massive blood transfusions may be required during surgery. Several moribund patients have been saved after courageous treatment.

Operation can not be delayed when there are other associated serious lesions, as skull fracture. Adrenalin is injected in an effort to contract the spleen. The incision may be a high left rectus which may be enlarged by a cross extension, or a subcostal one. The spleen is removed easily through a left transthoracic approach. The anesthetic should suit the case. After removal of the spleen, a quick exploration and repair may be performed on the other injuries. The spleen is mobilized more readily by first dividing the attachments to the diaphragm. The pedicle may be indurated and friable. It should be clamped and ligated in sections, being careful not to injure the pancreas or stomach. The pedicle vessels may be exposed more easily and controlled by approach through the gastrocolic and gastrolienal ligaments. The free blood may be aspirated for use as autotransfusion.

The procedure of choice is splenectomy. Repair of the spleen by suture may have a mortality of from 5 to 20 per cent. A single rupture may be repaired with mattress sutures.[8] A small penetrating wound may be controlled by the various hemostatic oxydized cellulose agents and suture. While the majority of physicians are opposed to sutures and packs, these may be used in small injuries.[6] Tampons to control bleeding are too uncertain to risk. The motions of respiration and rhythmic splenic contractions may dislodge them.

Complications of operation are the fatality due to irreversible shock, dehiscence and infection of the wound, pleural effusion, left basilar pneumonia, gastric dilatation, paralytic ileus and aseptic peritonitis. These may be aborted by administration of large doses of penicillin and by large transfusions, often 1,500 to 2,500 cc., as soon as the diagnosis is concluded. The fascia should be reinforced or be sutured with interrupted fine alloy wire or silk to help prevent wound separation.

The patient fares well without his spleen. Transient postoperative leukocytosis and thrombocytopenia have been reported. There may be:[13] "(a) an anemia which gradually returns to normal in three to four months; (b) an increased resistance to the destruction of the red blood cells; (c) an increased output of iron in the stools; (d) an increased total blood cholesterin; (e) no change in opsonins and agglutinins; (f) pronounced enlargement of superficial lymph glands; (g) ease of fatigability; (h) lowered number of blood platelets, considering 600,000 as normal." These authors conclude from four cases that none of the above was present. Blood volume after injection of adrenalin did not increase as in normal individuals, and remained constant. They conclude, "So far as health and growth are concerned, the spleen appears to be an unnecessary organ." Particles of spleen may be transplanted over the peritoneum but cause no deleterious effect. It is possible that this splenosis would not be of advantage should the patient develop purpura hemorrhagica.

SUMMARY

A case is presented of delayed rupture of the spleen in a 33 year old man. He felt perfectly well for four hours after injury and then had onset of acute upper left abdominal distress. The marked symptoms diminished after four hours. A lacerated spleen with ruptured subcapsular hematoma was removed. The patient recovered.

The symptom complex of ruptured spleen is discussed. There is a pathognomonic syndrome which may not be obvious at first. It varies from quickly developing shock and death to seemingly minor abdominal complaints.

The treatment of choice in any case of ruptured spleen is splenectomy. This should be performed even in the presence of shock or bizarre and mild upper left abdominal symptoms. Small penetrating wounds or lacerations may be packed with hemostatic oxidized cellulose agents and sutured.

The removal of the spleen does not seem to have untoward effects.

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TULAREMIC PNEUMONIA

(OPOSSUM AS SOURCE OF INFECTION)

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The following two cases of tularemic pneumonia are reported for three reasons: (1) the increasing incidence of tularemia in rural Missouri during the last season, (2) the unusual mode of infection in the two cases described, (3) remarkable response to streptomycin, especially in one of the cases in which the outlook was very grave.

On November 10, 1946, two farm youths, V. B. and F. H., took their first rabbit hunt of the season. According to the story given by V. B., he saw a dead rabbit in the brush and in his desire to be the first to bag game he walked on several paces then faced about suddenly and fired into the brush. He walked to the spot, held up the already dead rabbit for his partner to see and placed it in his game sack. The hunt continued, each boy shooting several more rabbits. On returning home the rabbits were thrown into a pen which contained several opossums that the boys were using for training dogs. This was done without skinning any of the rabbits. Subsequent developments in each case are given in the following case histories.

CASE REPORT

V. B., a 20 year old white male, was admitted to St. Mary's Hospital on November 24, 1946. He stated that he had not felt well for the last three to four days and thought he was catching cold. Twenty-four hours before admission he began to have stabbing pain in the left chest on breathing. This was accompanied by high fever and general prostration. No history other than that of an ordinary upper respiratory infection was given at that time.

On admission his temperature was 102 F., pulse 108, and respirations were 28. Physical examination at that time showed definite limitation of motion of the left chest with a slight pleuritic rub over the left apex.

Laboratory findings on admission were: white blood count 10,800, red blood count cells 4,330,000, Hb. 89 per cent; differential: segments 77; stabs 1; lymphocytes 22. Urinalysis: Ph. 5, specific gravity 1.034, albumin trace, sugar negative, microscopic negative. All agglutination tests were negative.

Subsequent course.—He was given penicillin 40,000 units on admission and 20,000 units every three hours. At the end of forty-eight hours he had failed to respond. Roentgen ray of the chest was made on November 26 (fig. 1) with the roentgenologist giving the following



Fig. 1.

report: Posterior and anterior views of the chest showed the extra thoracic soft tissues, the rib cage, the right diaphragm and costophrenic angles are not remarkable, The left diaphragm is very slightly elevated. The cardiac silhouette is in a transverse position. Several areas of calcareous material are present in the right hilum. The linear markings are prominent, especially the descending divisions which are not well defined. A very minimal amount of patchy haziness is observed in the left base. Calcified post-inflammatory foci. Bronchitis. Question minimal pneumonitis.

At that time, two days after admission, he was becoming increasingly toxic. It was apparent that he was not running the course of an ordinary upper respiratory infection with pleurisy. Additional history was sought from the patient and relatives without success until the mother asked in a rather off-hand manner if possibly rabbit hunting could have had anything to do with it. The history of the rabbit hunt was then obtained from the patient who added the following information: On returning from the hunt the rabbits were fed to the opossums as stated before. Subsequent to this several of the opossums became ill and died. He then called his hunting companion, F. H., and together they skinned the dead opossums and killed and skinned the remainder of them. No gloves were used in this process.

On November 28 the patient showed an agglutination for tularemia in 1 to 80 dilution. No streptomycin was available at that time. The penicillin was continued. Temperature rose to 104 F. on November 29 and there was definite consolidation of the left chest. The penicillin was continued and the patient was started on sulfathiazole 2 grams as an initial dose and 1 gram every four hours. Slight improvement in the temperature curve followed this but the patient became increasingly toxic and began to develop a pleural effusion on the left side. A roentgen ray on December 3 (fig. 2)



Fig. 2.

showed a massive pleural effusion. Thoracentesis was planned for the morning of December 4. At that time a supply of streptomycin was received. One fourth gram of streptomycin every three hours was instituted immediately and, as the effusion did not seem to be causing too much embarrassment, thoracentesis was delayed intentionally to put the drug to a severe clinical test. The improvement was noticed in the first twenty-four hours of therapy and was continued as noted on the temperature curve in figure 3. The chest was tapped

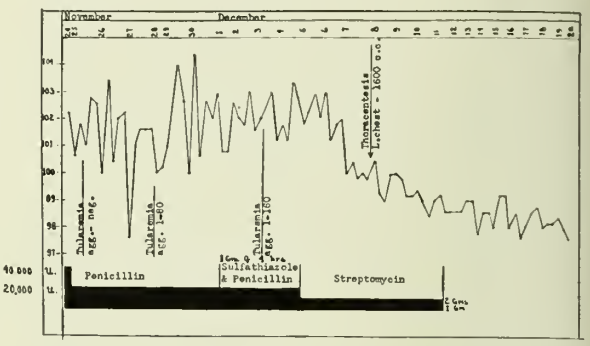


Fig. 3.

on December 8 and 1,600 cc. of straw colored fluid was obtained. Roentgen ray made on December 11 (figure 4) showed marked reduction of effusion and minimal



Fig. 4.

residual pleuritis. Streptomycin was discontinued on December 12 with a total dosage of 12 grams. Roentgen ray of the chest on January 6, 1947, showed complete resolution of pneumonia processes.

CASE REPORT

F. H., a 16 year old white male, was admitted to St. Mary's Hospital on November 30, 1946, complaining of chills and fever and cough with sputum of one week's duration. He had taken a few sulfa pills given him by a retired country physician but did not take over three or four of them. The essential findings on physical examination were limited mainly to the right chest where there were a few moist rales at the base. A small abrasion was noted on the left little finger at the base of the nail with an accompanying small axillary gland. The patient was questioned about the possibility of a tularemic infection and he gave the identical history that had been obtained from the other patient and named him as his hunting companion.

Temperature on admission was 101 F., pulse 120, and respirations 28.

Laboratory findings were: white blood cells 7,700, red blood cells 5,530,000, Hb. 86 per cent; differential: segments 37, stabs 25, lymphocytes 34, monocytes 3, eosinophils 1. Urinalysis: Ph. 7, specific gravity 1.020, chemical and microscopic tests negative. Agglutination tests were negative on December 1, 3 and 6; positive for tularemia on December 9 in 1 to 320 dilution.

Roentgen ray of chest made on November 30 showed pneumonitis of the right base with minimal pleural effusion.

Course.—The supply of streptomycin at this time was being conserved for V. B. and this patient was placed on sulfathiazole. There was no improvement in his condition. Temperature continued high and the findings in the right chest became more definite. On December 10 an additional supply of streptomycin was received and the patient was placed on one fourth gram every three hours. His temperature decreased rapidly, all pulmonary findings cleared, and he was discharged well on December 15, 1946. Recheck by roentgen ray on December 20 showed almost complete resolution of all pneumonic processes. Total streptomycin used was 6½ grams.

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SURGICAL REMOVAL OF A DEEP ACCESSORY URETHRA

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ST. LOUIS

Accessory urethra is probably not an extremely rare finding. Lowsley and Kirwin reported forty cases in 1940, and since then additional cases have been reported. O'Heeron and Webster reported two cases and Moore reported one case in 1946. Minor degrees of reduplication, consisting of a short duct, are relatively common, while complete reduplication is rare. The cases have been classified as complete or partial, depending on whether or not the duct communicated with the bladder. Most writers on the subject agree that only the accessory duct which is above the true urethra can be classed as a true accessory urethra. Many cases are undoubtedly never seen unless secondarily infected, or unless they cause incontinence. Most of the textbooks on urology devote little space to the question of treatment and tend to dismiss it with the statement that the treatment is, "either obliteration of the duct by fulguration, or excision of the duct." Just how the duct is to be removed usually is left to the reader's imagination. Lowsley and Kirwin in their textbook show the excision of a superficial duct. The case reported here, however, had an accessory urethra which was imbedded in the septum of the penis between the corpora cavernosa and just above the normal urethra so that a more radical approach was necessary. The method of removal that was devised is presented, therefore, because it offered a complete removal with a minimum of bleeding, and perfect postoperative functional result, without splitting the glans penis.

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CASE REPORT

The patient's chief complaint was of chronic "urethral" discharge for the last five years. At the onset, the discharge was diagnosed as acute gonorrhea. Administration of sulfathiazole brought an immediate, apparent cure. Within a short time, however, the purulent discharge returned and resisted further efforts at cure, although the patient was repeatedly told that no gonococci were present. The patient had married during this time and his wife had had no difficulty. On examination, a profuse, purulent discharge was seen coming from an accessory opening slightly above the normal meatus. Upon further questioning, this was found to be the site of the initial infection and the normal urethra apparently had never been infected. No urine had ever been passed out the accessory opening. Smears and cultures of the discharge were repeatedly negative for gonococci, but showed a mixed general infection. After three consecutive negative smears and cultures, exploration of the duct with a ureteral catheter showed it to be about 12 cm. long. The largest ureteral catheter which could be passed was an F 6. With the catheter in place, a urethroscopic examination was carried out, but no evidence of communication with the urethra or bladder could be found. Roentgen rays were then taken in the anterior and lateral projections. The duct was just above the normal urethra and ended in the region of the urogenital diaphragm. Skiodan was injected into the duct through the catheter and again no communication, either with the bladder or the urethra, could be demonstrated. Intravenous pyelography showed a normal upper urinary tract.

A trial at conservative treatment with sulfathiazole and penicillin combined with local irrigations through a ureteral catheter of increasing strengths of silver nitrate for three weeks was unsuccessful. The duct could not be dilated above F 6. It became apparent that if the infection were to be eradicated, proper drainage or removal of the tract would be required. To incise the duct throughout its length into the urethra by endoscopic means was quite possible, but was discarded since it would have opened up the corpus spongiosum for a considerable length. Surgical removal was then decided upon.

Under low spinal anesthesia, a small curved incision, shown in figure 1, was made in the midline of the shaft



Fig. 1. Initial incision over midline of penis and curving over the suspensory ligament.

of the penis, curving to the right over the suspensory ligament. The superficial fascia was incised and retracted, exposing the suspensory ligament and the su-

perficial vessels. The suspensory ligament was divided as shown in figure 2 and the vessels retracted on either



Fig. 2. Division of suspensory ligament.

side of the midline, ligating only enough of them to expose the midline. Buck's fascia then was incised and the crura exposed by blunt dissection. The proximal end of the accessory opening was dissected free from the anterior layer of the urogenital diaphragm, as shown in figure 3. The septum of the penis was divided



Fig. 3. Crura exposed, proximal portion of the accessory urethra being freed.

carefully in the midline, without opening the corpora, down to the level of the accessory duct as shown in figure 4. The incision was extended toward the glans penis, the duct freed, and the proximal portion removed. A hemostat was inserted through the accessory opening as shown in figure 5, and the duct inverted on itself. By gentle traction it was found possible to free bluntly the duct completely from the glans, and it was removed by incising only the mucosa of the glans around the orifice. A small strip of rubber dam drain was inserted through the opening up along the course of the accessory urethra, and the corpora were approximated with interrupted sutures of No. 00 chromic gut. The penile fascia and the suspensory ligament were sutured similarly, as shown in figure 6. The skin was approximated



Fig. 4. Division of septum penis in midline down to the accessory urethra.

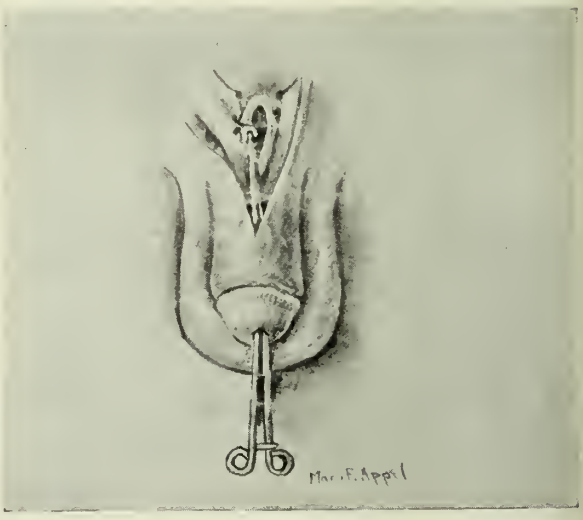
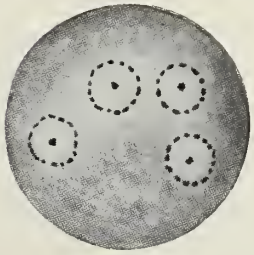


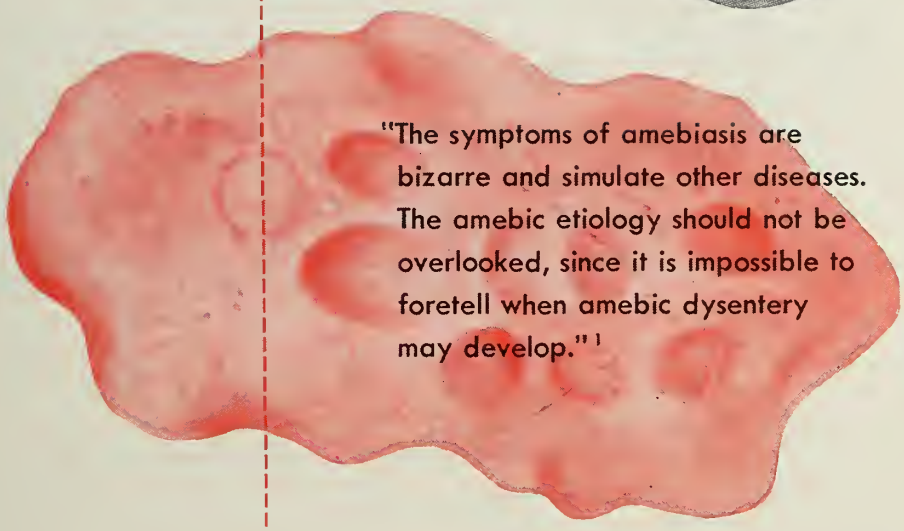
Fig. 5. Hemostat inserted through opening on glans, grasping sectioned end of duct.



Fig. 6. Repair of suspensory ligament, after corpora cavernosa and penile fascia have been approximated.

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Fig. 7. Completed closure, drain brought through the accessory opening on the glans penis.

with interrupted sutures of No. 20 cotton, the completed closure shown in figure 7.

There was minimal serous drainage from the wound for twenty-four hours, and the drain was removed in forty-eight hours. The wound healed completely and the patient had normal erections within a week. Since his discharge from the hospital he has reported normal coitus with no difficulty.

Microscopic sections of the accessory urethra showed only a chronic urethritis. There was no evidence of a corpus spongiosum.

DISCUSSION

Complete reduplication of the urethra communicating with the bladder probably would not become chronically infected and resistant to treatment since the passage of urine would provide free drainage. Cases of complete reduplication reported thus far have only had surgical excision when the accessory duct caused incontinence. The majority of cases of partial reduplication of the urethra are short ducts which seldom become infected. In a case of the type just presented in which the duct is long, once infection is introduced, it probably would remain because of the lack of proper drainage. The operation was attempted with great reservations because of the plentiful blood supply of the area, and because of the possibility of impotence following surgery. The approach selected proved to be relatively avascular and provided good exposure with no functional impairment. By inverting the duct upon itself and turning it inside out, it was possible to avoid splitting the glans penis, which was a decided advantage. While cases requiring such surgery are admittedly rare, it is presented because as far as it has been possible to determine, no similar operative removal has been described. Other cases described, in which the accessory urethra has been excised, have been those in which the extra duct has been superficial.

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CASE REPORT OF THE BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICO-PATHOLOGIC CONFERENCES AT THE BARNES HOSPITAL, ST. LOUIS

ROBERT J. GLASER, M.D., Editor

CASE 93

PRESENTATION OF CASE

J. M., a 65 year old white farmer, entered the Barnes Hospital on July 10, 1946.

Complaints.—Shortness of breath, constipation and loss of weight.

Past History.—The family history revealed that one sister died when 18 years of age from tuberculosis; the patient had been exposed to her throughout her illness. There was no history of allergic disorders in any member of the family. The past history indicated that the patient had had several severe injuries but no significant illnesses and no operations other than tonsillectomy. For six months prior to admission he had noted progressive weakness of the right hand and leg but no other neurologic symptoms. He had been a farmer for many years and had worked hard.

Present Illness.—Fifteen months before entry he developed a severe cold. One month later he was awakened in the night by an attack of shortness of breath with marked wheezing and cough; the episode lasted about thirty minutes. Similar attacks recurred and increased in frequency and intensity and four months later the patient stopped work. He was then free from symptoms for six weeks. On resuming work the attacks reappeared. The longest symptom-free interval thereafter was two weeks, and paroxysms occurred as often as four or five times a day for several days. They were always accompanied by cough which was productive of thick tenacious sputum. The attacks responded temporarily to oral medication and to hypodermic injections of epinephrine. Palpitation was frequent and some swelling of the ankles appeared a few weeks before admission.

Five months after onset, the patient began to have increasing constipation; his appetite slowly failed, vague abdominal discomfort was noted, and he lost about thirty pounds. Three months before entry he went to a hospital and after roentgenograms were taken, he was told that he had "a tumor at the upper end of the large bowel." An enlarged prostrate was thought to account for increasing difficulty in voiding. He was sent to the Barnes Hospital for treatment.

Physical Examination.—At the time of entry, the patient's temperature was 37.2 C., pulse 60, respirations 20 and blood pressure 174/90. He appeared



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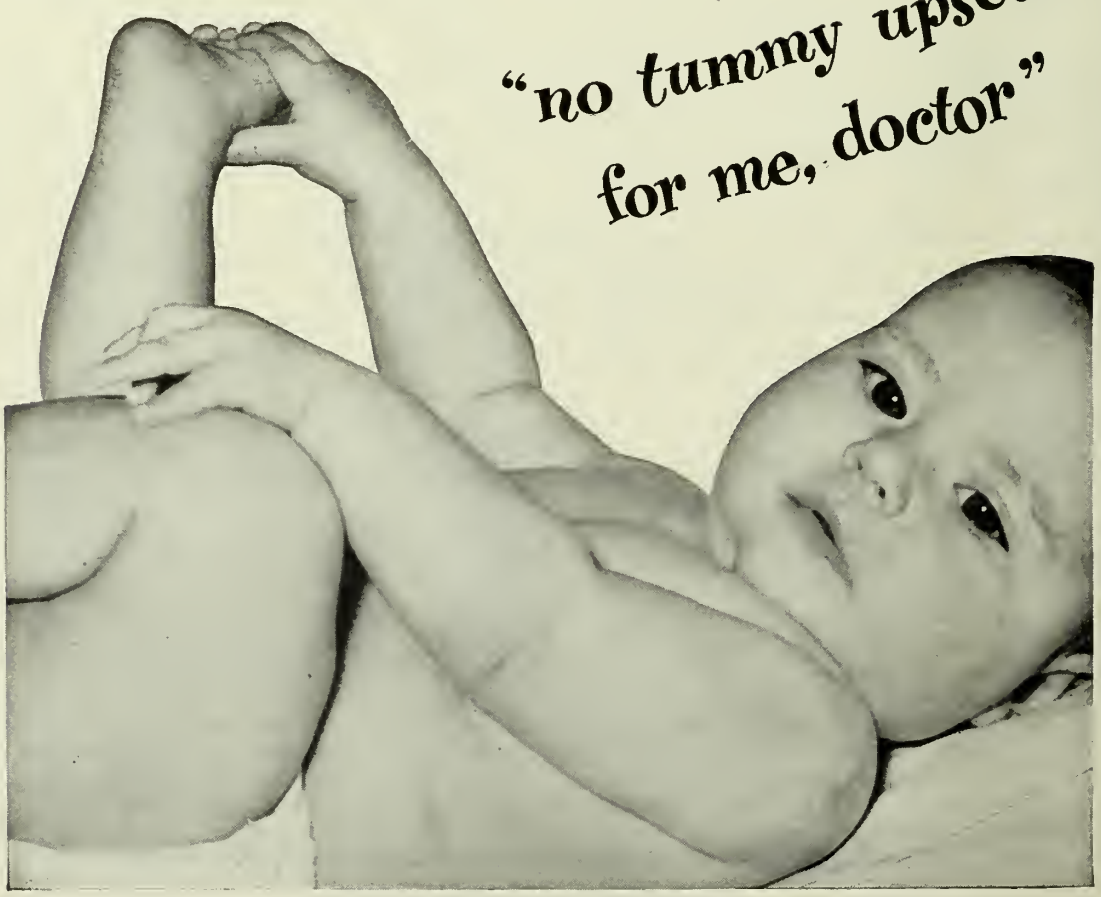
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well developed but poorly nourished and seemed chronically ill. The pupils reacted normally but moderate narrowing and tortuosity of the retinal arteries were observed. Hearing was impaired bilaterally and the drums were retracted. The teeth and gums were in poor repair. The thorax was somewhat barrel-shaped with increased anteroposterior diameter. Dorsal kyphosis was moderate. The percussion note over the lungs was hyperresonant. The breath sounds were distant; the expiratory phase was prolonged and wheezes were audible. No rales were heard. The heart was not enlarged; the rhythm was regular, the sounds distant, and there were no murmurs. There was marked tortuosity and thickening of the peripheral vessels. The abdomen was soft. The liver edge was firm and rounded and could be felt 3 centimeters below the right costal margin. No other organs or masses were felt. The prostate was enlarged moderately and firm. No edema was present. There was some weakness of the right arm and leg but no muscle atrophy. The biceps tendon reflex was slightly more active on the right side but the other reflexes were equal.

Laboratory Findings.—Blood count: red cells, 5,200,000; hemoglobin, 14 gms.; white cells, 6,400; differential count: eosinophils, 1 per cent; stab forms, 6 per cent; segmented forms, 74 per cent; lymphocytes, 17 per cent; monocytes, 2 per cent. Urinalysis was normal. Stool examination was normal. Kahn reaction: negative. Venous pressure: 60 mm. NaCl. Circulation Time (arm to tongue with Decholin): 12 seconds. Sputum examination: no acid fast bacilli, Curschmann's spirals or eosinophils. Sputum culture: predominating organism, E. Coli. Vital capacity: 4,200 cc. Roentgenograms of the chest: "aortic lengthening and increased hilar shadows." A gastrointestinal series was indeterminate. Electrocardiogram: myocardial damage (low T wave in lead I).

After entry to the hospital, the patient was fluoroscoped and the diagraphms were seen to move well. Examination of the sinuses by a consultant revealed a thickened membrane; this finding was confirmed by a roentgenogram. The maxillary antra were irrigated and clear fluid was recovered.

Course in Hospital.—The patient's first asthmatic attack was relieved promptly by 0.3 cc. of 1:1,000 epinephrine solution subcutaneously. He continued to have four of five mild asthmatic attacks during the first week. For these he received ephedrine orally, aminophyllin rectally and intravenously, and epinephrine subcutaneously. Sputum cultures no longer showed E. Coli and revealed no other predominating pathogenic organisms. Enemas were required for satisfactory bowel function.

Two weeks after admission, potassium iodide orally was added to the therapeutic regimen. For one attack the patient was given 1,000 cc. of 5 per cent glucose in water containing 1 gm. of aminophyllin and 0.5 cc. epinephrine, 1:1,000; the infusion was administered over a period of 3½ hours but caused restlessness and trembling. The patient's pulse rose to 160 and his blood pressure to 140/100. The heart sounds were distant. Although the chest became clear, the patient remained agitated for about twenty minutes after medication was discontinued. Demerol, 100 mg. every 6 hours, was prescribed to promote rest. Paraldehyde, given occasionally at night, produced sleep. Severe asthmatic attacks continued and oxygen with helium was tried without much effect. A repeat differential count showed no eosinophilia. Because of mild fever and the possibility of an infectious basis for the asthma, penicillin was given.

On July 31, at 11:30 p. m., the patient awakened with a severe asthmatic paroxysm. He got out of the oxygen tent and sat on the edge of the bed. He was placed back in the tent and given 0.2 cc. of epinephrine and 100 mg. of demerol subcutaneously at 11:55. He died a few minutes later.

CLINICAL DISCUSSION

HARRY L. ALEXANDER, M.D.: This case appears to be one of bronchial asthma which began in this patient when he was 64 years old. He died fifteen months later, apparently in a paroxysm of asthma. There are other features of interest; particularly the symptoms relating to the gastrointestinal and cardiovascular systems. Let us first consider the asthma. Dr. Wilson, you saw this patient during his hospital stay. Would you comment?

KEITH S. WILSON, M.D.: When the patient first entered the hospital, the asthma seemed much less important than the gastrointestinal complaints; it was thought quite likely that he might have a neoplasm of the gastrointestinal tract.

DR. ALEXANDER: It is understandable that the asthma seemed a less impressive feature of the patient's illness when he was first admitted for, although he had had asthma for fifteen months, he had not had a serious attack up to that time; further, his vital capacity was over 4,000 cc. Was there anything else unusual about his asthma, Dr. Wilson?

DR. WILSON: Commonly, the differential count shows an increase in eosinophils and eosinophils are found in the sputum; neither of these findings was present in this case.

DR. ALEXANDER: It should be pointed out that frequently eosinophils are difficult to find in sputum and a negative examination is not always conclusive. In this case, Curschmann's spirals were also not seen, and certainly the absence of eosinophils in the peripheral blood is not usual.

DR. WILSON: The finding of E. Coli in the patient's sputum seemed of importance but further cultures failed to reveal the organism.

DR. ALEXANDER: Dr. Harford, what about colon bacillus bronchitis?

CARL G. HARFORD, M.D.: E. Coli are often cultured from the upper respiratory tract and when reported only once, cannot be considered significant.

DR. ALEXANDER: Rarely, colon bacillus bronchitis complicates asthma; in such instances a very difficult therapeutic problem arises.

W. Barry Wood, Jr., M.D.: Colon bacillus pneumonia also occurs rarely; several cases have been reported within the last two or three years.

Samuel C. Bukantz, M.D.: There are reports of the use of parenteral penicillin and penicillin aerosol in cases of asthma with pulmonary infection in which the sensitive organisms were eradicated, leaving E. Coli as the predominating organism.

Dr. Wood: The same observation has been made in other mixed infections, especially those involving the kidney.

Charles H. Eyermann, M.D.: In my opinion, this case may be classified as an example of non-allergic asthma. In regard to the high vital capacity, it would seem rather unusual in view of the fact that physical examination revealed emphysema, hyperresonance, and distant breath sounds and heart sounds.

Dr. Alexander: The position of the diaphragms on fluoroscopy was in keeping with a high vital capacity. When you read this case report, did you think it was an unusual case of asthma.

Dr. Eyermann: I felt that any one of three causes for the wheezing dyspnea was possible—allergic asthma, non-allergic asthma, or cardiac asthma due to arteriosclerotic heart disease. The patient did have evidence of generalized arteriosclerosis.

Stanley F. Hampton, M.D.: Despite the absence of eosinophils or Curschmann's spirals in the sputum, I believe this case is rather typical of so-called intrinsic asthma.

Dr. Alexander: Was the course of the illness compatible with that diagnosis?

Dr. Hampton: Many patients with intrinsic asthma progress to a rather rapid terminal phase after a relatively short and benign course.

Dr. Alexander: Would it be acceptable to attach the term, "non-allergic asthma," to this type of disease?

Dr. Hampton: Yes.

Dr. Alexander: There are primarily two forms of bronchial asthma. One is extrinsic or allergic type due to sensitivity to foods, pollens and such. The other occurs in older individuals, may be due to infection, and is not related to allergy in its clinically accepted sense. In this case, because of the lack of evidence of hypersensitivity to any external allergen, it is felt that this man had non-allergic or intrinsic asthma. It is of interest that as soon as the patient stopped work, his asthma disappeared. This observation would attract the attention of allergists who feel that environmental influence is important. Again, he became much worse here in the hospital, another factor which perhaps suggests the possibility of an environmental or extrinsic influence.

Dr. Hampton: I do not believe that there was allergic edema of the bronchial mucosa, although smooth muscle spasm without edema may have been present.

Dr. Alexander: Do you believe that when Dr. Dammin shows us the pathologic findings that they will be those of bronchial asthma?

Dr. Hampton: Yes.

Henry H. Graham, M.D.: Clinically, the patient's attacks seemed to be made worse by antral irrigations; as a matter of fact, that procedure appeared to be related to the change from mild to severe asthma.

Bertrand Y. Glassberg, M.D.: Dr. Alexander, do you believe this man had true bronchial asthma?

Dr. Alexander: Yes, I do.

Dr. Glassberg: I ask that question because this case brings to mind a patient whom I saw several years ago. He presented a very similar history and physical findings. At autopsy, it was found that the patient had a carcinoma at the bifurcation of the trachea which had given rise presumably to infection and partial obstruction and had thus led to wheezing.

Dr. Alexander: Although in this patient the loss of considerable weight is suggestive of neoplastic disease of the lungs, I still think his wheezing was on the basis of bronchial asthma.

Dr. Wilson: I agree. The wheezing, bronchospasm, moderate amount of mucoid sputum and the rhonchi all favor that interpretation.

Dr. Alexander: The presence of rhonchi is of great importance. They arise as a result of sticky secretions which are typical of bronchial asthma. I should like to touch on one other point. Dr. Eyermann, do you believe the patient became sensitive to any of the drugs that he was taking?

Dr. Eyermann: It is true that although individuals in this age group who develop asthma are not often sensitive to usual allergens, they may become sensitized to a drug at any time. This man, however, did not receive any drug which ordinarily gives rise to hypersensitivity. I have seen one individual in whom wheezing increased after he was given demerol but the pharmacologic action of demerol is to increase bronchial dilatation and the apparent sensitivity may have been coincidental.

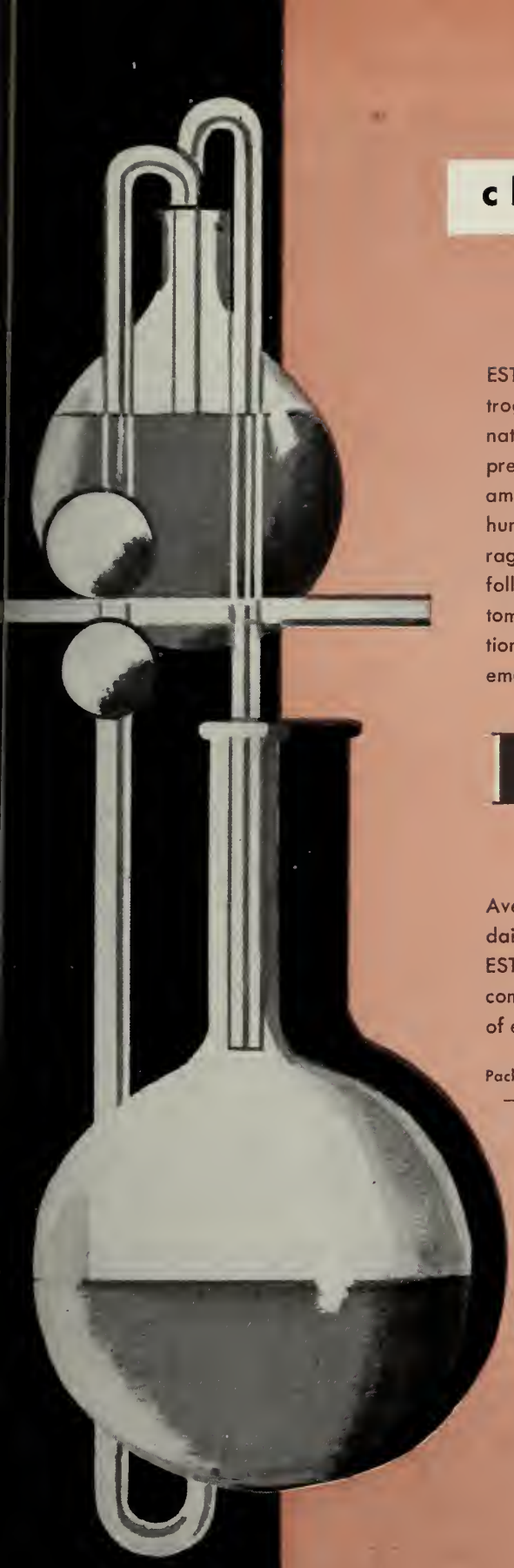
Dr. Alexander: One can then say that epinephrine, aminophyllin and demerol rarely if ever, cause sensitization. Demerol has been used in asthma because of its broncho-dilating property. It is very different from morphine in this respect. It should be emphasized here, however, that demerol, like morphine, if used over a long period of time, may lead to addiction.

John R. Smith, M.D.: Is there any evidence that penicillin, given either intramuscularly or as an aerosol, causes the sputum to become more tenacious.

Dr. Bukantz: No, I think the evidence suggests that penicillin therapy decreases the tenacity of the sputum in these cases.

Dr. Wood: Can Dr. Smith rule out cardiac asthma in this case?

Dr. Smith: Cardiac asthma and bronchial asthma may be clinically similar. It is important to note that this man did not have significant cardiac enlargement. Actually, in patients with increased anteroposterior diameter of the thorax and low diaphragms, cardiac hypertrophy may be less ap-



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1. Bickers, W.: Am. J. Obst. & Gynec. 51:100, 1946.

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parent than real. This patient's blood pressure underwent no striking changes and I do not believe that his asthma originated on a cardiac basis.

Dr. Alexander: May cardiac asthma occur five times a day?

Dr. Smith: Cardiac asthma may occur many times a day; it may be fairly severe and even be relieved by adrenalin.

Gustave J. Dammin, M.D.: The fact that the vital capacity was 4,200 cc. suggests that the asthma was not cardiac in origin.

Dr. Alexander: Dr. Massie, do you believe that the sudden death suggests fatal coronary occlusion?

Edward Massie, M.D.: No, I do not.

Dr. Alexander: The patient received epinephrine just before his death. Could that have been responsible for the sudden terminal event.

Dr. Massie: Ventricular fibrillation may follow the administration of epinephrine and may conceivably have occurred here. Further, it seems likely that this 65 year old man had some coronary artery disease and epinephrine may constrict the coronary arteries, especially if given in large doses.

Dr. Alexander: Epinephrine given intravenously in a patient of this age, with electrocardiographic changes, must be administered with great caution and used only when other measures fail to relieve intractable asthma. It is an heroic measure. In this instance, there was apparently a decided effect as indicated by the restlessness and marked tachycardia.

Dr. Hampton: I do not believe the patient died of asthma. Asthmatics do not often die suddenly in my experience.

Dr. Massie: What is the mechanism of death from asthma?

Dr. Alexander: There are two modes of death in asthma. A patient may die suddenly following the administration of a substance to which he is extremely sensitive. The other form of death in an asthmatic person is very slow. The bronchi become plugged with mucous, patients develop marked emphysema, and have progressive respiratory difficulty.

Dr. Massie: Recently a patient who had had severe asthma over a period of years was given decholin and died rather precipitously following injection of that drug. Presumably death may have been due to decholin or perhaps it was coincidental. What is your opinion, Dr. Alexander?

Dr. Alexander: I know of only one instance in which death due to hypersensitivity to decholin was reported.

I. Jerome Flantz, M.D.: Was this man's terminal episode not compatible with pulmonary embolism?

Dr. Alexander: That is a very good suggestion.

Dr. Hampton: There is one other possibility of sudden death in asthma; namely, spontaneous pneumothorax.

Palmer H. Futcher, M.D.: The neurologic changes probably were attributable to arteriosclerotic changes in the brain, but one can think of two other explanations. One is metastatic neoplasm from the lung to the brain and the other is metastatic abscess.

Dr. Alexander: I agree with you. I also considered the possibility of a carcinoma of the lung. Dr. Bottom, do you find any roentgenologic evidence of a pulmonary neoplasm?

Donald S. Bottom, M.D.: No.

Dr. Alexander: In summary, we have a patient who apparently had bronchial asthma. The diagnosis was made on the history and physical signs. He had no eosinophilia in his peripheral blood or in the sputum, and no Curschmann's spirals were present in the sputum. There was no history of allergy and no history of hypersensitivity. His death was sudden and unexpected. At postmortem examination, only some of the lesions typical of bronchial asthma should be found. With a history of asthma dating back only fifteen months and a vital capacity of 4,200 cc., marked hypertrophy of bronchial musculature secondary to bronchospasm, which is so prominent in long-standing bronchial asthma, probably will not be found although there should be some. On the other hand, the characteristic tenacious mucus in the bronchi, seen frequently at the time of death, should be present. Suggestions have been made that death may have had a cardiac basis; that is, myocardial infarction or an arrythmia. The consensus of opinion is that no infarct will be present although there may well be coronary arteriosclerosis.

CLINICAL DIAGNOSIS

Bronchial Asthma.

PATHOLOGIC DISCUSSION

Oscar N. Rambo, Jr., M.D.: At autopsy, there were dense fibrous adhesions obliterating the right pleural cavity; the lungs were large and completely filled both pleural cavities. The major bronchi of each lung contained a moderate amount of bloody, mucoid material; all of the secondary and tertiary bronchi and the smaller radicals contained thick, yellow, tenacious mucus. The air spaces on the surface of the lung were visibly distended. There were two nodules in the periphery of the lower lobe of the right lung. Other nodules were present in the tracheobronchial lymph nodes; all were calcified.

The heart weighed 360 grams. The wall of the right ventricle appeared slightly dilated and its wall was 5 millimeters thick. The remainder of the heart showed no unusual changes for a man of his age. There was slight sclerosis of the coronary vessels but no occlusion could be demonstrated and there was no evidence of myocardial infarction.

No lesions were demonstrated in the gastrointestinal tract or in the brain.

Dr. Dammin: The slides demonstrate features which are characteristic of fatal bronchial asthma. Figure 1 is a section of a medium sized bronchus. The lumen is partially filled with mucoid material containing desquamated epithelial cells and a large number of eosinophils. In the next section (figure 2) another bronchus showing similar material in the lumen is seen. The epithelium lining the lu-



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* Vital Statistics—Special Reports: Vol. 25, No. 12, National Office of Vital Statistics, Washington, D. C. (Oct. 15) 1946, p. 206.

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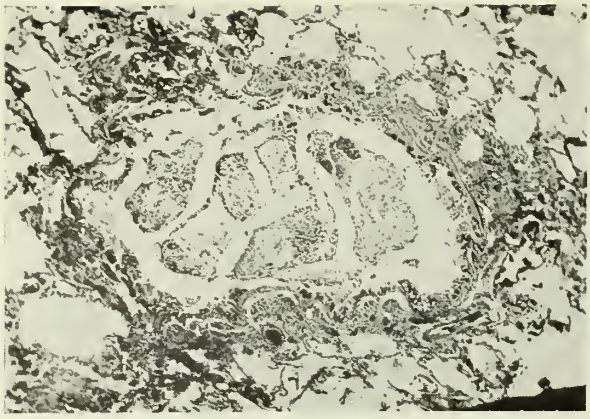


Fig. 1. Microscopic section of a medium-sized bronchus which shows mucoid material in the lumen. Epithelial cells and eosinophils are present.

men is moderately hyperplastic. The same section, under higher magnification (figure 3) shows hyalinization of the basement membrane, hypertrophy of the muscular coats, and infiltration of the musculo-elastic layer with eosinophils. In one of the bronchial glands there is active secretion as evidenced by distended goblet cells.

Figure 4 is a section of a bronchiole. The lumen is occluded with mucus and there is a dense peribronchial cellular infiltration with eosinophils predominating. A small artery and arteriole lie adjacent to the bronchiole; the walls of both vessels show marked hypertrophy. Whether these changes are related to pulmonary hypertension cannot be established; the walls of arterioles in other parts of the body did not exhibit similar hypertrophy.

Throughout all lobes of the lungs, particularly at the periphery, there was a marked degree of emphysema. The last section (figure 5) is from an emphysematous area of the lung and shows distention of the alveoli and rupture of the walls; characteristic clubbing of the divided septa is clearly demonstrated.

The principal abnormalities then were those in the lungs. The gross and microscopic findings indicate that the cause of death was bronchial asthma.

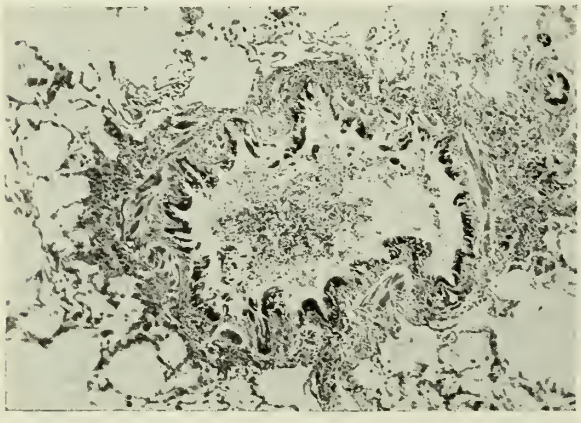


Fig. 2. Another section of the bronchus showing hyperplastic epithelium.

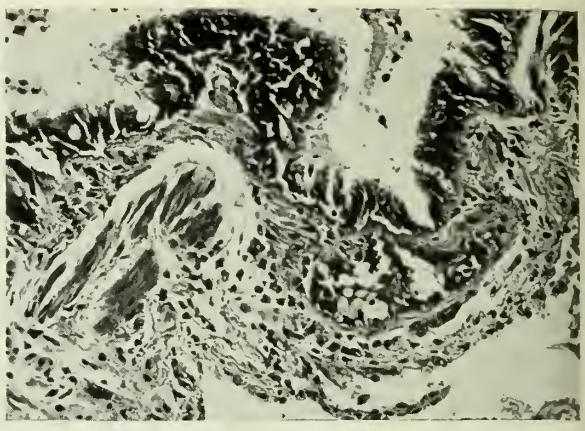


Fig. 3. High-power view of an area in the wall of the bronchus seen in Figure 2. The basement membrane is hyalinized; there is hypertrophy of the muscular coats, and the musculo-elastic layer is infiltrated with eosinophils. Note particularly the distended goblet cells in the bronchial gland.

All the features found in such cases are seen here. Dr. Rackemann and Dr. Mallory presented a very interesting account of their experience at the Massachusetts General Hospital and, in a very illustrative chart, showed the course in fifty cases of asthma which came to autopsy. Briefly, those patients in whom asthma began early in life, that is, between 10 and 20 years of age, lived to be 40 to 60 years old, but died of pneumonia or another type of infection. There was a gap until the later years. This case is illustrative of asthma beginning at the age of 50 or 60. Some such patients lived only a few months after their initial attack which typically followed an upper respiratory infection.

In reading the protocol, I was concerned with the medication given the patient in the last few days of his life. I looked up some of the literature on demerol and found that it was related structurally to morphine and atropine. There are two desirable and undesirable effects which can be demonstrated with demerol. Demerol does relax the bronchial musculature and also acts on the vagal nerve fibers the way atropine does. However, it tends to cause some degree of respiratory depression and, in larger

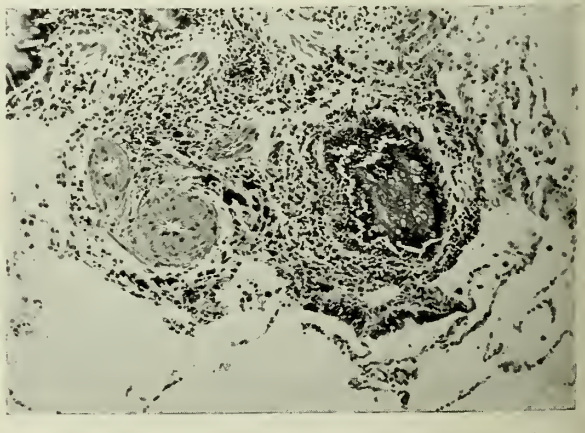


Fig. 4. Section of a bronchiole, the lumen of which is occluded with mucus. The walls of the small artery and arteriole, adjacent to the bronchus, show marked hypertrophy.

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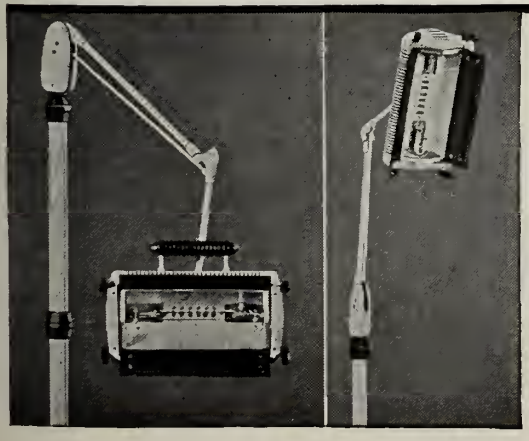


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Fig. 5. Section taken from an emphysematous area of the lung showing alveolar distention and rupture of the walls. Note the characteristic clubbing of the divided septa.

doses, may lead to respiratory paralysis. The only note I found regarding the use of demerol in bronchial asthma is that it is always given in smaller doses than when used in other situations. The dose generally recommended is 35 milligrams. It is difficult to predict how patients in this age group may react to certain drugs. Sensitivity to drugs like demerol and particularly to aspirin occurs in a significant number of patients.

ANATOMIC DIAGNOSIS

Mucous plugs in all of the secondary and tertiary bronchi and the smaller bronchial radicals (history of intrinsic bronchial asthma for fifteen months and death during asthmatic attack).

Emphysema of all lobes of the lungs.

Moderate dilatation and hypertrophy of the right ventricle of the heart.

Calcified nodules in the lower lobe of the right lung.

Calcified tracheobronchial and bronchopulmonary lymph nodes.

TUMOR SEMINAR

CONDUCTED BY ARTHUR PURDY STOUT, M.D.

NEW YORK, N. Y.

UNDIAGNOSED TUMOR OF ASTRAGALUS

History (presented by Lauren V. Ackerman, M.D., Columbia).—This 38 year old male had pain in the right foot of two months' duration. About seven months previous to admission, on April 22, 1946, he stepped off a tractor and twisted his ankle. He noted a dull aching pain during the last few months before admission which increased after walking. Anterior-posterior and lateral views of the right foot showed a slightly lobulated, osteolytic defect in the anterior-inferior portion of the astragalus, and an oblique vertical fracture in the anterior portion of the lesion. These findings were compatible with giant cell tumor. The lesion was evacuated with cautery and bone chip graft in May of 1946.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The sections show a number of small fragments of tissue, most of which have the same morphology. They consist of a dense tissue in which there are many elongated cells collected into groups with quite broad spaces between them devoid of nuclei. With fiber stains it is found that these spaces are made up of closely packed collagen and reticulin fibers which have pushed the nuclei aside. No blood pigment or giant cells are found. Where there are a few bone fragments attached to one piece, the tumor pushes up against them but does not invade between the trabeculae. There is no division into A and B tissue but there are some places where there are less dense reticular partitions between the cords of tumor cells and some of these cords with their palisaded nuclei very much resemble Verocay bodies.

Comment.—The diagnosis in this case is a difficult one. Certainly the lesion is not like the common central giant cell tumor. Nor does it resemble the changes seen in the usual variety of osteitis fibrosa. There is considerable resemblance to the common tendon sheath tumors called giant cell tumors or fibrous xanthomas but as I have never found such a tumor within a bone I have hesitated to classify this as such. The palisading of nuclei and the occasional areas of degeneration, together with the twisted arrangements of cells and fibers vaguely suggesting Verocay bodies tempt one very strongly to classify this as a Schwann cell tumor of bone. These are not unknown. DeSanto and Burgess have described two cases both of which I have seen and can vouch for. Friedman has described from the Laboratory of Surgical Pathology at Columbia University neurofibromas of bone in von Recklinghausen's disease as others have done before him,

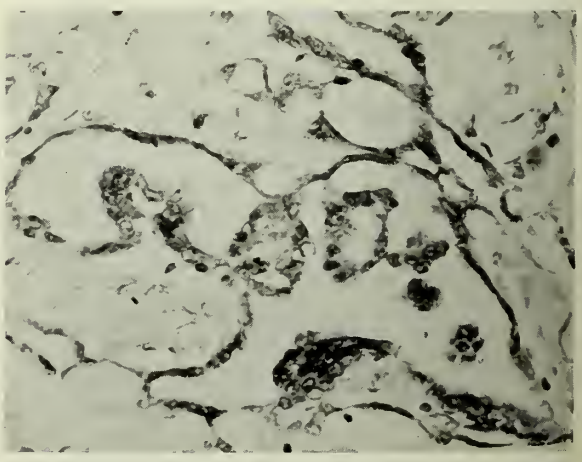


Fig. 1. Undiagnosed tumor of astragalus.

The Tumor Seminar conducted by Arthur Purdy Stout, M.D., Associate Professor of Surgery, Columbia University, and Surgical Pathologist to the Presbyterian Hospital, was presented at the Ellis Fischel State Cancer Hospital, Columbia, October 26, 1946, under the auspices of the St. Louis Pathological Society and sponsored by the Missouri Branch of the American Cancer Society.

and Peers reported a possible malignant Schwannoma in bone. But the picture here is not entirely characteristic and although strongly tempted I have come to the conclusion that the resemblance is not close enough to warrant a positive diagnosis of Schwann cell tumor, especially in the absence of any clinical evidence of von Recklinghausen's disease.

I am therefore left without the ability to make a definitive diagnosis. The lesion is possibly akin to the giant-cell tumor-osteitis fibrosa group but there is sufficient doubt in my mind to leave me uncertain.

De Santo, D. A., and Burgess, E.: Primary and Secondary Neurilemmoma (sic) of Bone, Surg., Gynec. & Obst. **71**:454, 1940.
Friedman, M. M.: Neurofibromatosis of Bone, Am. J. Roentgenol. & Radium Therap. **51**:623, 1944.
Peers, J. H.: Primary Intramedullary Neurogenic Sarcoma of Ulna, Am. J. Path. **10**:811, 1934.

DISCUSSION

DR. STOUT: I would like very much to know if anybody was able to arrive at a satisfactory diagnosis of this growth.

DR. GRAY: I called it a Schwannoma.

DR. PINKERTON: Fibroma.

DR. STOUT: What else? Did anybody call it osteitis fibrosa? Well, I must say it is certainly a very peculiar growth and I shall be very much interested to learn what Jaffe will say about this. I have great respect for Jaffe's opinion in bone tumors. He has given more study to them than anyone in this country.

GIANT CELL TUMOR OF TIBIA

History (presented by Lauren V. Ackerman, M.D., Columbia).—Three months before admission in December 1942, this patient, a 19 year old female, noted some pain in the right knee, together with very slight swelling. There was no constitutional symptom. On examination there was slight swelling on the medial condyle of the right tibia. There was no tenderness to moderate pressure. Roentgenograms were reported as follows: "KNEES. Bone density and structural loss is visualized, involving the greater portion of the lateral tibial condyle. The mesial margins are fairly well defined. The destruction extends superiorly to the articular margin. Laterally the destructive area presents a pseudocystic appearance with cortical thinning, minimal destruction and subperiosteal proliferation. The area of bone involvement measures approximately 6 cm. in vertical dimension and to the midline mesially. In the lateral view, the involvement of bone extends from the anterior margin posteriorly approximately 42 mm." This tumor was aspirated on December 16, 1942, and curettage followed by zinc chloride cauterization also was done. There was no evidence of recurrence in May of 1946.

ARTHUR PURDY STOUT, M.D.: *Microscopic Description* (fig. 1).—There are several fragments of granulomatous tissue made up of many monocuclear phagocytes and some multinucleated syncytial masses set in an inconspicuous vascular stroma. Mitoses average one in every four or five high power fields. Hemorrhages have been frequent. All of the cells have an adult differentiated appearance. No atypical osteoid is seen.

Comment.—The picture is characteristic of the

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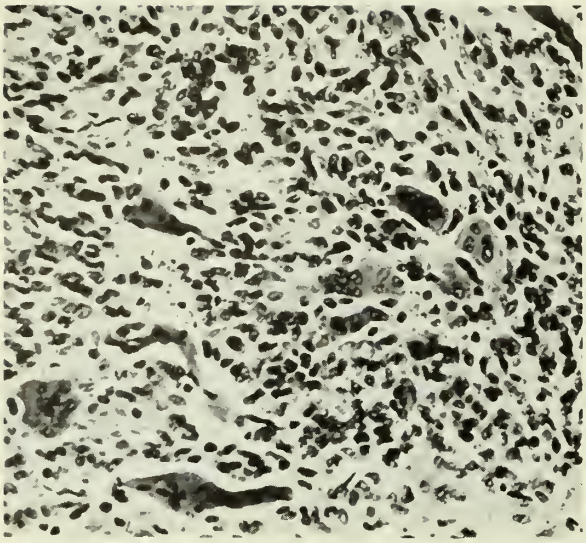


Fig. 1. Giant cell tumor of tibia.

benign giant cell tumor of the epiphyses. It is important always to make certain that such a lesion as this is not an osteolytic form of osteogenic sarcoma for on occasion this latter can simulate the appearance of a benign giant cell tumor. One must look carefully for a high mitotic rate and bizarre cells; one or both of these are always present when the tumor is an osteogenic sarcoma. If atypical osteoid can be found the diagnosis is assured, but frequently this feature is lacking. Moreover, the picture can vary in different parts of the same tumor. These facts make the diagnosis from aspiration biopsy extremely hazardous. The more I see of the bone tumors, the less I feel I know about their vagaries. Incidentally it may be noted that the osteolytic form of osteogenic sarcoma is the one assumed by most of the malignant tumors which develop from osteitis fibrosa, giant cell tumor and Paget's disease of bone. It is my opinion also that the tumor described as a central fibrosarcoma of bone is in truth an osteogenic sarcoma masquerading as a fibrosarcoma. In any event, the so-called central fibrosarcoma is just as malignant as the osteogenic sarcoma and generally a very careful search through many sections will permit one to find evidences of neoplastic osteogenesis or if not in the primary growth, then in its metastases. If one keeps always in mind the fact that almost all the mesodermal tumors have the capability of producing fibroblasts and connective tissue fibers as well as their own specialized tissue, it helps one to understand their histologic complexities.

There is one variety of true fibrosarcoma which can be classified as such, i.e., the fibrosarcoma of the periosteum. This tumor behaves very much like the skin fibrosarcomas; that is to say it infiltrates surrounding tissues freely so that drastic measures are often necessary to eradicate it but if these are carried out a cure is generally effected, for the tumor rarely if ever metastasizes.

To return to the treatment of the benign giant cell tumor, this may be successful after either radiotherapy or curettage with or without cauterization. There is one great advantage of the surgical method: it removes the tumor tissue thus permitting adequate pathologic examination which may not be decisive after aspiration or incisional biopsy.

DISCUSSION

Dr. Stout: Did anybody not make the diagnosis of giant cell tumor? And are there any questions which anybody cares to raise about this variety of growth or other bone tumors?

Dr. Ackerman: What would you say about the grading of these tumors that Jaffe has recommended?

Dr. Stout: I have not as yet applied it, so I want to reserve my opinion until I can do so. He is a pretty careful observer, so I always pay attention to what he says.

Dr. Bauer: Would you consider this as true tumor?

Dr. Stout: I do not consider the giant cell tumor a neoplasm. I think it is a granulomatous lesion of some kind.

CARCINOMA (HEPATOMA) OF LIVER

History (presented by Lauren V. Ackerman, M.D., Columbia).—This 62 year old female was sent to the hospital because of a growth in the region of the cheek which was excised and found to be a basal cell carcinoma. In conversation with the patient, it was found that during the last year her weight had dropped from 103 to 87 pounds. There also had been alteration in bowel habits, consisting of alternating constipation and diarrhea. On abdominal examination, an easily visible, large mass measuring approximately 9 cm. could be seen. It was freely movable, did not appear to extend into the flank, and moved only questionably on respiration. This was thought to be a carcinoma of the right colon, but barium enema revealed that the mass was extrinsic, and the question of renal origin arose. Retrograde pyelograms were not helpful. On exploratory laparotomy on March 17, 1946, a pedunculated tumor was found attached to the free margin of the right lobe of the liver. This was excised. Grossly, it was continuous with liver substance, was well delineated, measured 9 by 9 by 7 cm. and, on section, had a lobulated,

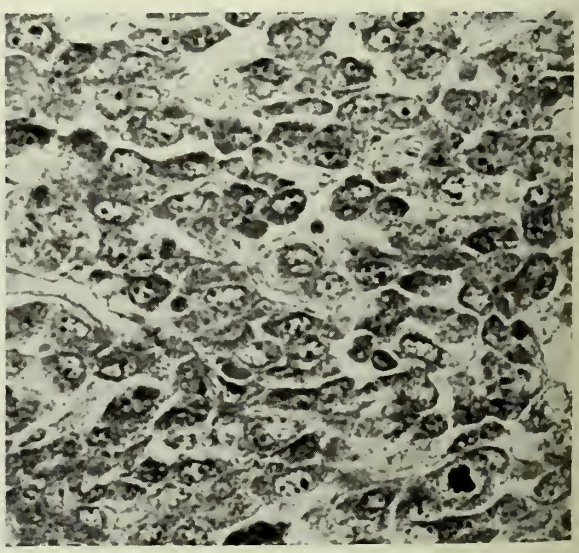


Fig. 1. Carcinoma (hepatoma) of liver.



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yellowish appearance. This patient was seen two months later and was without evidence of recurrence.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The section shows a tumor attached by fibrous tissue to a segment of liver. Aside from a little localized fibrosis the liver shows no evidence of cirrhosis. The tumor is composed of large nodules made up of solid masses of what appear to be hepatoblasts. They are rounded or slightly flattened, closely packed together and the cytoplasm is acidophilic and granular. The nuclei have one or two rather large nucleoli and show mitoses on an average of one in every high power field. Along one side of that part of the section which contains the tumor, there are a number of bile ducts in fibrous tissue. They are well differentiated. Some are recent proliferations and some of adult appearance. It is uncertain whether or not these are part of the tumor, but in my opinion since they are so well differentiated while the hepatoblasts are not, they should not be considered neoplastic.

Comment.—This tumor appears to be a primary liver cell tumor or hepatoma. It is customary to divide such tumors into benign forms or adenomas and malignant ones or carcinomas. It has been our experience that the great majority are carcinomas if one excepts the small adenomas found at autopsy. It is interesting to learn from a paper by Warvi in 1945 that there are reports of 570 resections of liver tumors in the literature although he does not tell us how many of them were hepatomas. The adenomatous forms reproduce with considerable accuracy the histologic appearance of normal liver cells and do not show bizarre cells or mitoses. The present tumor shows many mitoses and some irregularities of growth so that my inclination would be to classify it as a carcinoma. It should be pointed out that Schrager in 1937 remarked that many writers on the subject emphasize the malignant potentialities of adenomatous hepatomas even when one part of the tumor appears benign. This also has been our experience. The large benign appearing adenomatous hepatoma reported at the San Antonio tumor seminar by Severance (Stout, 1946) was subsequently resected. When the entire tumor was studied, it was found that in other parts it was quite anaplastic and had the appearance of a carcinoma. While long term cures of even large hepatomas have been reported this is quite uncommon and the majority subsequently die of recurrent tumor.

Schrager, V. L.: Surgical Aspects of Adenoma of the Liver, Ann. Surg. **105**:33, 1937.
Stout, A. P.: Tumor Seminar, Texas J. Med. **41**:564, 1946.
Warvi, W. N.: Primary Tumors of the Liver, Surg., Gynec. & Obst. **80**:643, 1945.

DISCUSSION

Dr. Stout: Did anybody consider this as a primary liver tumor? And did all of you classify it as the hepatoma type? How many thought it was malignant? Did anybody think it was benign? Well, we are pretty much in agreement, then.

Dr. Ackerman: The tumor was almost impossible to diagnose clinically because it was pedunculated. A primary neoplasm of the large bowel and then a kidney tumor were considered. The diagnosis of a liver tumor came as a surprise.

Dr. Stout: It does not surprise me at all that the clinical diagnosis was difficult.

SACROCOCCYGEAL CHORDOMA

History (presented by Lauren V. Ackerman, M.D., Columbia).—Eighteen months previous to admission on September 6, 1941, this 61 year old male experienced severe pain in the rectum. From that date on, he began to have difficulty in urination, and marked constipation alternated at times with moderate diarrhea. Physical examination revealed a male in excellent general condition. Rectal examination disclosed a smooth, firm, extrarectal mass filling the hollow of the sacrum. Roentgen rays of the pelvis, and a barium enema showed a massive pelvic tumor which displaced the rectum and bladder and produced an associated destruction of the inferior portion of the sacrum and coccyx. A biopsy was taken by making an incision over the lower portion of the sacrum. On entering the deep fascia, greyish, soft, meaty tumor tissue was exposed. Because of the extensiveness of the tumor, it was felt that an operation was out of the question. Roentgentherapy was given in September of 1941. In August 1946, rectal examination revealed a persistent tumor. However, it was much smaller than when the patient was first seen and he was without complaints except for progressive constipation.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The sections show a tumor made up of masses of rather large polygonal cells with small nuclei that are occasionally multiple. The cells have voluminous cytoplasms furnished with very finely fibrillated meshworks which often contain vacuoles. Surrounding the cell masses is a fibrillated vacuolated stroma. Cells are often necrotic and mitoses are not found.

Comment.—This tumor has all the characteristics of a physaliferous neoplasm or chordoma. It is an uncommon tumor, since in 1941 Harvey and Dawson found only 240 cases recorded. It has arisen in one of the two most common sites—the sacrococcygeal region. The other is the base of the skull. As usual it has destroyed part of the sacrum and has grown anterior to it. The most remarkable feature from the clinical point of view is the arrest by radiotherapy which has lasted for 5 years. One cannot regard this as a cure for I am not familiar with any cured case of chordoma, although some patients

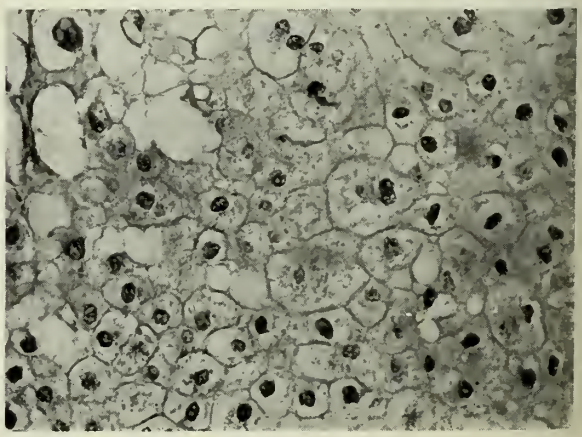


Fig. 1. Sacrococcygeal chordoma.

have survived for more than 10 years, and slow growth is a common feature. It is questionable whether or not complete eradication of a chordoma has ever been effected. The chordoma is the malignant tumor form derived from the same tissue which gives rise to the nucleus pulposus—namely the notochord.

Harvey, W. F., and Dawson, E. K.: Chordoma, Edinburgh M. J. 48:713, 1941.
Piraud, G.: La Notochorde, Paris, Le Francois, pp. 1-444, 1933.

DISCUSSION

DR. STOUT: Did anybody call this anything else except a chordoma? Does anybody know of a cured case of chordoma? So far as I know, none has ever been reported.

ADENOMA OF BRONCHUS

History (presented by Robert A. Moore, M.D., St. Louis).—Following an episode of pneumonia from fourteen to fifteen years previous to admission, this 48 year old male had a chronic cough which had been nonproductive in nature up until a short time before admission when he coughed up a pint of bright red blood. Bronchograms revealed a complete block of the right lower lobe bronchus. The tumor was apparently arising from the posterior wall of the right main stem bronchus. The patient died following an attempt at surgical removal. At necropsy, there was an encapsulated, reddish-gray growth measuring 2 by 1 by 1 cm. which almost completely obstructed the main stem bronchus. On section, it appeared quite vascular. Distal to the tumor the bronchi were dilated.

ARTHUR PURDY STOUT, M.D.: *Microscopic Description* (fig. 1).—The section shows a sharply circumscribed tumor which completely fills and distends a large bronchus. It is made up of anastomosing cords of rather small rounded and occasionally short cylindrical cells which twist tortuously and are loosely supported by a delicate and very vascular stroma. The cell cords have shrunk away from the stromal compartments in which they are contained. The cell cytoplasm is very finely granular and slightly acidophilic. Rosettes are formed

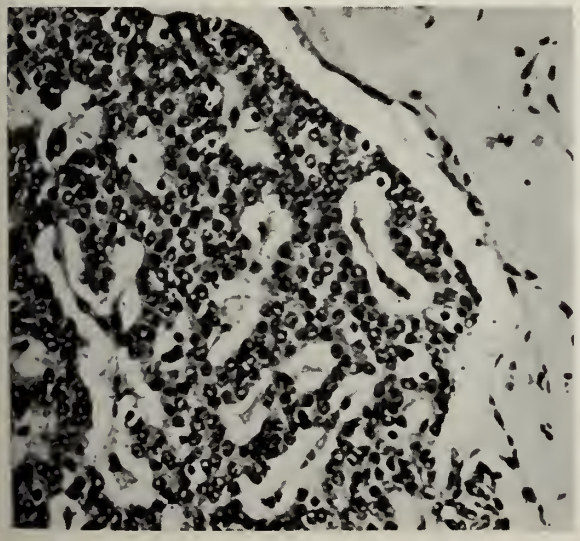


Fig. 1. Adenoma of bronchus.

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Joe Marsh

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occasionally, but no tubes, and there is no evidence of mucin secretion. The morphology is maintained throughout and very much resembles that of a carcinoid tumor. The tumor does not seem to have penetrated through the bronchial wall. On one side at the margin of the tumor is a nodule of differentiated cartilage and cancellous bone. This is partly in the bronchial submucosa. On the other side is a small piece of cancellous bone in a similar relative situation.

Comment.—This tumor is an entirely characteristic so-called adenoma of the bronchus about which so much has been written in recent years. It is well known that these tumors generally develop in the main stem bronchi of relatively young individuals or children. They form polypoid projections beneath the surface mucosa eventually causing partial obstruction and bronchiectasis. They are often very vascular and bleed easily. Progressive growth is slow, lasting over a period of years. Unlike this case, the majority of them eventually penetrate through the wall of the bronchus into the surrounding lung where they may rarely form relatively large tumors. In a few instances metastasis to the regional nodes, the liver and bone marrow have been reported. I myself have never seen this but undisputed records of it exist, so that they are not completely benign tumors. It is generally agreed now that they are best treated by pneumonectomy or lobectomy.

The origin of these tumors has occasioned a great deal of speculation. It is generally agreed that they do not come from the lining mucosa. The hypotheses include that of Womack and Graham who suppose that they come from undeveloped bronchial buds. The majority of writers suggest a derivation from the mucous and serous glands of the bronchi which seems difficult to credit unless it be that they are derived from the peculiar acidophilic granular cells called oncocytes found among the ordinary mucous and serous cells. Hamperl pointed out the resemblance of these bronchial adenomas to the carcinoid tumors of the intestine. They differ, however, because unlike the carcinoids of the intestine they have no argentaffine cells. Thus the riddle of the origin of these tumors so far remains unsolved.

It is well to point out that some tumors which grossly resemble bronchial adenomas prove to be similar sometimes to the mixed tumors of salivary glands and sometimes to the cylindromatous type of carcinoma. Such tumors are very uncommon and not much information has been accumulated about them but it would seem that they are about on a par, so far as malignancy is concerned, with the bronchial adenomas.

Graham, E. A., and Womack, N. A.: The Problem of the So-called Bronchial Adenoma, J. Thorac. Surg. **14**:106, 1945.
Laff, H. I., and Neubuerger, K. T.: Bronchial Adenoma with Metastases, Arch. Otolaryngol. **40**:487, 1944.
McDonald, J. R.; Moersch, H. J., and Tinney, W. S.: Cylindroma of the Bronchus, J. Thorac. Surg. **14**:445, 1945.
Stout, A. P.: Cellular Origin of Bronchial Adenoma, Arch. Path. **35**:803, 1943.
Womach, N. A., and Graham, E. A.: Mixed Tumors of the Lung So-called Bronchial or Pulmonary Adenoma, Arch. Path. **26**:165, 1938.

DISCUSSION

Dr. Stout: I would like to ask if anyone here has seen metastases from tumors of this sort?

Margaret Smith, M.D., St. Louis: We have had one, reported by Anderson. I know there were metastases in liver and lymph nodes, and I think there were at least two other cases that metastasized to lymph nodes.

Dr. Ackerman: Would you agree in view of the possibility of metastases to regional nodes that, in cases of this type, pneumonectomy would be more logical than lobectomy?

Dr. Stout: Yes, I do not like to tell the thoracic surgeons their business too much in electing the type of operation they will choose. On theoretical grounds, I agree. Nowadays pneumonectomy is often a safer operation than lobectomy. I am sorry Nate Womack is not here. I would like to discuss the origin of these tumors with him at such a meeting as this instead of in medical journals.

Anderson, William M.: Bronchial Adenoma with Metastasis to the Liver, J. Thorac. Surg. **12**:351-360, 1943.

BRONCHIAL EPITHELIAL HYPERPLASIA AND METAPLASIA WITH EXTENSION INTO ALVEOLI SIMULATING ALVEOLAR CARCINOMA

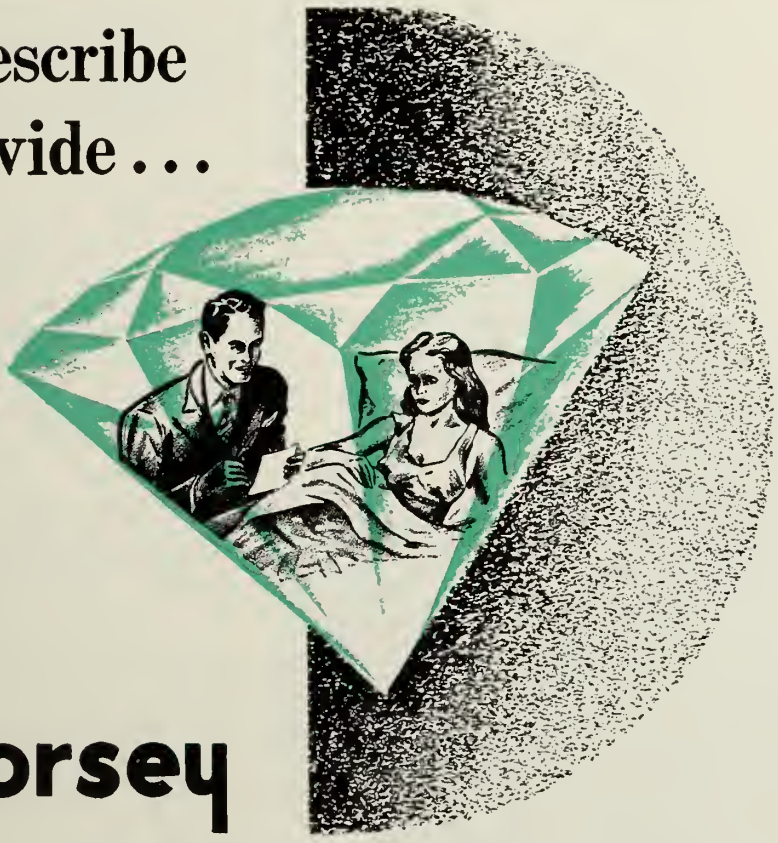
History (presented by Henry Pinkerton, M.D., St. Louis).—The patient was a male, aged 72. He had had one episode of "flu," persistent bronchitis since October 1944, and had been treated in Barnes Hospital between Novmber 1944 and March 1945. In October 1945, following a slight recurrence in March and April of that year, he developed cough and severe dyspnea on exertion, and again entered the hospital. On examination, the patient was extremely dyspneic; there was evidence of secondary anemia, and examination of the sputum was noncontributory. He died of respiratory failure. At necropsy, the right lung weighed 1,250 grams, the left, 1,100 grams, and their cut surfaces were grayish in color, homogeneous and granular. The process apparently involved all lobes of both lungs. The peribronchial lymph nodes were enlarged and on section, revealed increased coal pigmentation.

Arthur Purdy Stout, M.D.: *Microscopic Description* (fig. 1).—The section shows a segment of a profoundly altered lung in which there is moderate interstitial fibrosis. Many of the alveoli are lined by swollen cells varying from flattened to polygonal in shape which are sometimes vacuolated. Other alveoli are lined by hyperchromatic columnar



Fig. 1. Bronchial epithelial hyperplasia and metaplasia with extension into alveoli simulating alveolar carcinoma.

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cells which secrete mucus. They line and often distend the alveoli and in some areas they are furnished with cilia. Elsewhere the tumor-like cells are in solid masses and at least two of these show epidermoid metaplasia with the formation of intercellular bridges. In the slide submitted it is impossible for me to tell whether these solid cell masses are in the stroma or in alveoli, but I believe that they are in alveoli. Without differential stains it is difficult to be certain but I believe similar columnar ciliated cells line the bronchioles.

Comment.—This case poses many interesting questions. In the first place, although the history does not say so, I presume no primary carcinomatous focus outside of the lung was found. I believe it is safe to assume this because some of the columnar cells are ciliated and I cannot conceive of metastatic cells retaining cilia. If this is not a metastatic lesion, the next question to be decided is the exact distribution of the columnar tumor-like cells. I believe that they line bronchioles and have grown into alveoli, lining these also and continuing mucus secretion in the new situation. Personally I do not believe any of these cells are truly neoplastic even where they form solid cords and show squamous metaplasia. This condition has been repeatedly described following a number of varieties of chronic pulmonary irritation including influenza. Huguenin credits Askanazy with first observing this relationship in 1918 and, as shortly after this the series of publications began to appear which called the world's attention to the great increase in pulmonary cancer, this form of hyperplasia was one of the factors suggested as precancerous and contributing to that increase.

The presence of the epithelial mucus-secreting cells lining the alveoli at once raises the question of whether or not there is such an entity as alveolar carcinoma. This has been interestingly discussed in recent papers by Wood and Pierson and by Herbut. It seems that the question as to whether or not the pulmonary alveoli are lined by epithelial cells remains undecided, although many think they are not so lined, but there is at least a suggestion that scattered epithelial cells may remain after the lungs have developed, and that from these cells the remarkable condition arises known as pulmonary alveolar adenomatosis in man, and as Jaagsiekte and by other names in sheep. As I have never had an opportunity personally to study either of these conditions, I do not feel qualified to express an opinion as to whether the epithelial mucus-secreting cells which line the alveoli in these conditions arise in situ or grow into the alveoli from bronchioles. I am in the same position with regard to the so-called alveolar carcinoma but my inclination is to agree with Herbut that the tumor cells arise in bronchioles and extend into the alveoli. No doubt also Herbut is correct when he points out that a number of cases of metastases from glandular carcinomas have grown into alveoli, lined them with mucus-secreting cells and thus imitated the appearance of so-called primary alveolar carcinoma. It should be remarked that the illustrations in Wood and Pierson's paper of what they call pulmonary alveolar adenomatosis closely resemble the appearance of some of the epithelial-lined alveoli in this case under discussion so that perhaps it should be so classified.

To summarize: I believe that this is a case of chronic pulmonary fibrosis and inflammation following unresolved influenza and characterized by a marked hyperplastic and metaplastic proliferation of bronchiolar epithelium with extension into alveoli, producing an adenomatous effect. In the section studied by me, I could find nothing which convinced me that the hyperplasia had become cancerous.

Herbut, P. A.: "Alveolar Cell Tumor" of the Lung, Arch. Path. **41**:175, 1946.
Huguenin, R.: Le Cancer Primitif du Poumon, Masson et Cie., Paris, 1928.
Stout, A. P.: Human Cancer: The Lungs, Bronchi, and Pleurae. Philadelphia, Lea and Febiger, 1932.
Wood, D. A. and Pierson, P. H.: Pulmonary Alveolar Adenomatosis in Man, Am. Rev. Tuberc. **51**:205, 1945.

DISCUSSION

Dr. Pinkerton: I have the feeling that the condition of this lung was for a long time a pneumonitis of the virus type; that is, interstitial, and that this change is a relatively recent occurrence. We have been quite interested in this case because we have four cases that seem to fit into this category. In one of these, there were bronchial lymph node metastases. So, I have the feeling that it is a neoplasm following a virus type pneumonia and that it may go on, if the patient lives long enough, to a metastatic carcinoma. This type of disease is transmissible by filtrates. In other words, it is a virus disease; some virus that produces first a pneumonitis. It is either a bronchiolar or a diffuse alveolar cell carcinoma. The point is that it has a multicentric origin throughout all parts of the lung and that it rarely metastasizes, but cases identical with this have been reported.

Ruth Silberger, M.D., St. Louis: I had the opportunity two months ago of seeing a case of pulmonary adenomatosis which was definitely benign in type. The cells were different from the ones shown here inasmuch as they were much more regular, smaller and there was no hyperchromatism of any kind. I think there is a definite difference between that case and this one which shows more anaplasia of the cells. Have there been any similar changes in the larger bronchi?

Dr. Pinkerton: We had had some similar changes in the bronchi but this does not show any changes. Alveolar origin or not, it is of more interest to me to know what the nature of the disease is. The smaller bronchi up to 5 mm. in diameter were examined and did not show any metaplasia.

Dr. Gray: I believe you have to call this carcinoma because of individual cell variation.

Dr. Stout: The question comes up as to when you begin to decide that a change has occurred into cancer. All I can do to defend my thesis is to say that I could not convince myself that any of these cells showed true cancerous change.

Dr. Pinkerton: You find a good many of these cells that are eosinophilic and then you find basophilic areas.

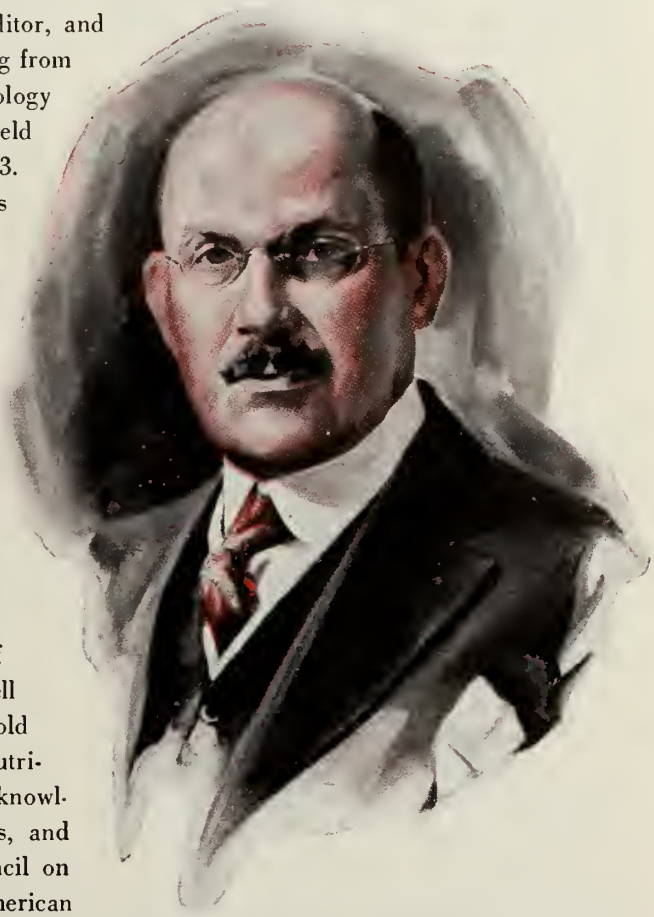
Dr. Stout: Do you want to liken this to carcinoma in situ?

Dr. Pinkerton: I think if this patient had lived a few months longer he would have had metastases. In this case, you might call it carcinoma in situ. The roentgenogram just before death showed multiple nodular lesions throughout the lungs.

Men and Amino Acids

Lafayette B. Mendel is recognized as a pioneer in the science of nutrition, and as a writer, editor, and educator of wide influence. On graduating from Yale University in 1891, he studied physiology and physiological chemistry in the Sheffield Scientific School, receiving his Ph.D. in 1893. In 1895 and 1896, he continued his studies abroad under Professor Heidenhain at Breslau, and Professor Baumann at Freiburg. Beginning as an assistant in physiological chemistry at Sheffield, Mendel became a full professor in 1903, and a member of the Governing Board. In 1921 he was named Sterling professor.

For many years, Mendel collaborated with the distinguished investigator of vegetable proteins, Thomas B. Osborne, conducting valuable researches on the comparative biologic value of proteins of differing amino acid composition, as well as in other fields of nutrition. His manifold contributions to our understanding of nutrition in the chemistry of life were acknowledged in numerous lectureships, honors, and awards. He was a member of the Council on Pharmacy and Chemistry of the American Medical Association from 1917 until the time of his death, and of the Committee on Foods from its inception.



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THE DIAGNOSIS AND TREATMENT OF BRAIN ABSCESS

FRANCIS A. CARMICHAEL, JR., M.D.
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While it cannot be doubted that the introduction of modern chemotherapeutic elements such as the sulfanilimides and the more recent employment of penicillin and streptomycin have reduced the incidence of brain abscess considerably, still this problem exists and is deserving of profound consideration. These therapeutic agents have proven most effective in reducing the morbidity of such concomitant complications of brain abscess as meningitis and ependymitis. However, it seems the consensus of opinion that once brain abscess has its inception in a focal implantation the use of these modern drugs does not influence its progressive life cycle, i.e., once the abscess has been conceived within the brain nothing short of surgical manipulation will suffice.

Etiology.—Discounting the most obvious etiologic factor in the production of brain abscess, penetrating wounds of the cranium which fortunately are a thing of some rarity in civilian practice, the next two great precursors of brain abscesses are inflammation in the paracranial air sinuses and suppuration of the lung. From the earliest studies of abscess of the brain it became apparent that the condition was associated frequently with other definite pathologic states. First among these is otitis media, from which Weil[1] estimated that 40 per cent of brain abscesses were derived. Immediately following otitis media came all the pathologic states of the lung of which bronchiectasis is the principal contributor. In analyzing the cause of death in sixty-three cases of bronchiectasis Shorstein[2] found that seventeen patients had died of bronchopneumonia whereas thirteen had died of abscess of the brain, this being second in the list of causes of death in this relatively common and often considered benign condition.

Next in frequency of association with abscess of the brain are other chronic focal infections such as osteomyelitis and sinusitis. Closely allied to this group are the chronic systemic infections such as septicemia and endocarditis, all of which conditions seemingly accomplish their effect by transportation of bacteria or septic emboli by the blood stream. It has long been appreciated that a few chronic infections around the head and face, particularly adjacent to the nose and in the butterfly area, frequently are conducive to the formation of brain abscess either by thrombophlebitis, direct extension or embolism.

Diagnosis.—The diagnosis of brain abscess is not always an easy matter. It is, of course, quite helpful if any one of the predisposing factors such as those mentioned are existent. This serves to raise the index of suspicion of the examiner and to give him some confidence in pursuing the proper investigations.

The clinical neurologic symtomalogy which may be shown by the patient with a brain abscess, of course, varies widely, depending upon the location, extent and rapidity of development of the lesion. It has been my personal experience that papilledema is a comparatively rare finding in the early stages of brain abscess and often is absent throughout the course of the disease. However, fullness of the optic nerve heads and obliteration of the physiologic cups seem to be a rather constant occurrence.

Examination of the visual fields is quite an important procedure whenever brain abscess is suspected, particularly those abscesses which arise as a sequela or complication of otitis media or mastoiditis. Abscesses arising as a result of these pathologic states usually perforate the petrous bone somewhere in the neighborhood of Trautmann's triangle and form the abscess in the basi temporal lobe. In this location they impinge either upon Meyer's loop or the optic radiations producing the characteristic contralateral hemianopsia of various extent and completeness.

The precise neurologic symptomatology of the patient may be any combination of monoplegias, hemiplegias or paraplegias, depending upon the precise intracranial situation of the abscess. The plegias resulting from brain abscess may for the same reason be spastic or flaccid, complete, incomplete or partial.

The subjective complaints of the patient are generally those of expanding intracranial mass lesion and cannot be differentiated from tumor, cyst, or hematoma. These symptoms are most commonly headache, nausea, vomiting and visual disturbances. Patients with brain abscess frequently, particularly at the time of rather complete encapsulation of the lesion, show a consistently jagged, subnormal temperature and rarely show constitutionally any of the usual clinical criteria of toxemia or debilitating infection by reason of the brain abscess alone.

Laboratory Adjuncts.—There are some laboratory procedures which may shed considerable light upon the diagnosis of brain abscess. Of these, spinal puncture offers consistently the greatest aid. It can be stated with some certainty that there is no appreciable risk in careful spinal puncture for the purpose of diagnostic tests in regard to brain abscess. The puncture should be done with the patient in the horizontal position and a small needle of gauge 20 or 22 should be employed. As is the case when any mass intracranial lesion is suspected the Queckensted maneuver should never be employed.

Once the fluid is removed (and only enough should be removed to carry out the contemplated test) a cell count should be made immediately before any hemolysis can occur. It has been my experience that the total cell count is not as important as the ratio between the polymorphonuclear leukocytes and the lymphocytes, an observation first stressed by Woltman.[3] As a general rule, the higher the total cell count, the more primitive and recent

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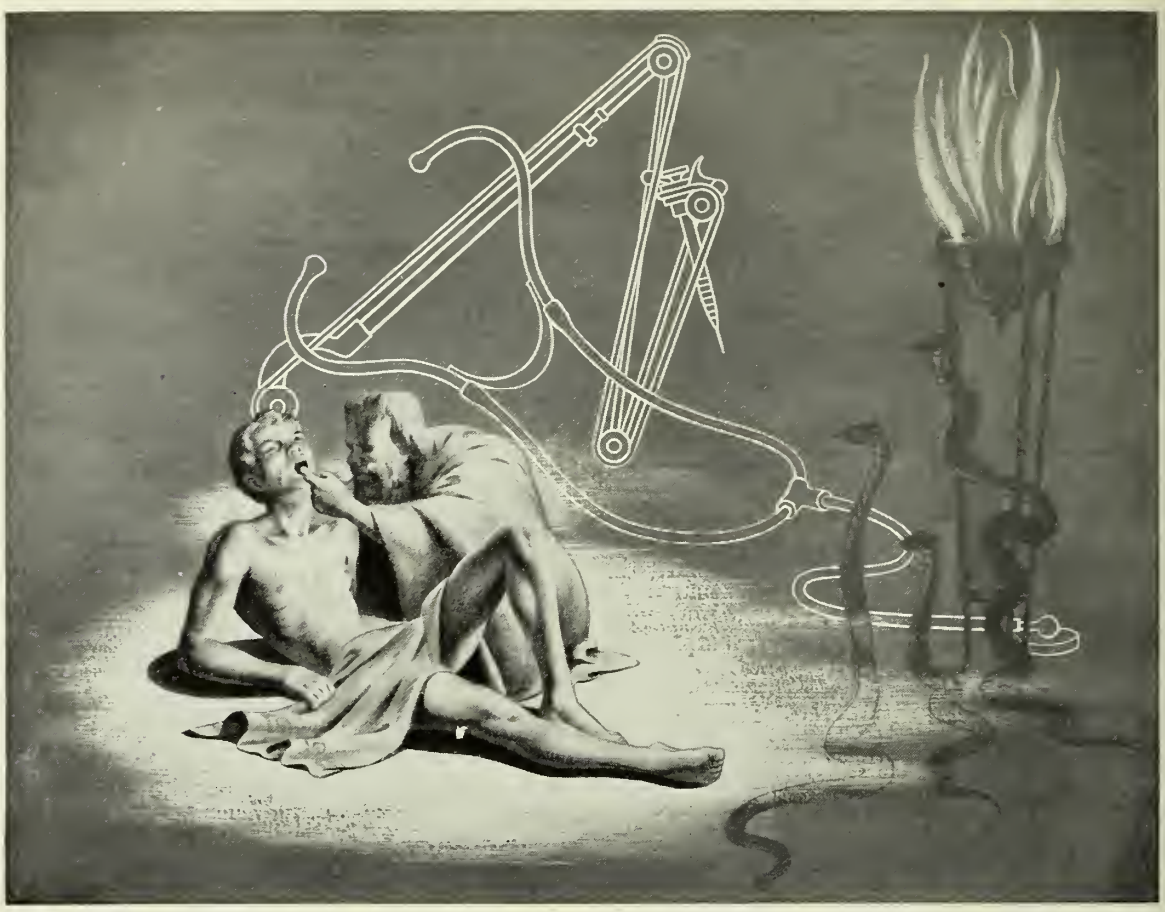
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is the abscess development. The lower total cell count indicates a more long-standing process. However, both these factors may be influenced by the proximity of the abscess capsule to the arachnoid space or to the ventricles, in which case there is a great effusion of white cells into the spinal fluid.

At the advent of development of a brain abscess the polymorphonuclears characteristically outnumber the lymphocytes in the ratio of about three to one. As encapsulation proceeds, this ratio is reversed gradually so that in a well encapsulated abscess of long standing the mononuclear elements usually predominate over the polynuclear elements in about the ratio of three to one or even higher. This is not only a valuable diagnostic aid but aids materially in the niceties of decision concerning the optimum time for surgical intervention.

Analysis of the blood in the elucidation of brain abscess is of little value. Leukocytosis is often absent and even the sedimentation rate may not be spectacular in its rapidity.

The use of plain roentgen rays of the skull is usually valueless unless the precursor of the brain abscess has been an osteomyelitic process in the paracranial sinuses or in the skull itself.

The use of contrast methods to delineate the presence of brain abscess is sometimes of considerable value. In this regard it must be stated emphatically that the use of encephalography is at all times dangerous inasmuch as it may result in rupture of the abscess into the ventricular cavities or into the subarachnoid space, as well as being dangerous from the usual consideration of pontine or medullary herniation.

When contrast methods are necessary for the accurate localization of brain abscess, which is quite often, ventriculography is the procedure of choice. In carrying out this procedure it is perfectly permissible to use unusual ventricular approaches in the hope that the exploring cannula may encounter the abscess and obviate the necessity of carrying out the air insufflation.

Treatment.—As soon as the patient is suspected of harboring a brain abscess he should be given the benefit of all the powerful chemotherapeutic agents at one's disposal. This should include the use of sulfadiazine in rather large doses such as 1 gm. every four hours. Penicillin likewise should be used in rather large doses such as 30,000 units every three hours intramuscularly and from 10,000 to 20,000 units intrathecally once or twice a day depending upon the alteration of the cerebral spinal fluid pleocytosis. It is a well known fact that the molecules of penicillin do not pass the encephalic barrier of the brain so, in order to produce any appreciable concentration of this pharmaceutic in the spinal fluid, it is necessary to introduce it directly into the intrathecal space. However, of late, there have been recorded several disastrous instances in which the dosage of penicillin was heroically high and resulted in unpleasant sequelae such as permanent paraplegia. For this reason, it is felt that in the adult the dose of from 10,000 to 20,000 units once or twice daily is sufficient to accomplish the desired bacteriostatic effect without endangering the patient further.

Treatment in addition to this is merely supportive and consists of assuring the patient of an adequate nutritional and fluid intake.

Of all the important questions regarding brain abscess the most important is the decision concerning the optimum time for surgical intervention. Long experience by a great many capable operators has shown that premature surgical intervention in the case of abscess, before the abscess has become fully encapsulated, usually results fatally or in such serious complications as ependymitis or meningitis, either of which may become paradoxically fatal even though the abscess is handled correctly.

The choice of the optimal time to operate depends, of course, upon the patient's symptomatology, the progression or regression of swelling of the optic disks, the relative ratio of polynuclear to mononuclear elements in the spinal fluid and the progression of the accompanying neurologic findings. It might be stated as a general rule that in brain abscess, as perhaps in few other organic ailments, procrastination is a supreme virtue.

The choice of anesthesia is usually not too important in dealing with brain abscess although in the case of children local anesthesia obviously is not the anesthesia of choice. With children it is best to employ either open drop ether or, preferably, endotracheal gas oxygen ether anesthesia. In dealing with an adult it is often possible to carry out a perfectly successful surgical exploration with the use of local anesthesia, providing the patient is conscious and cooperative. Local anesthesia in a stuporous or delirious patient is fraught with many hazards.

The technics employed for the handling of brain abscess may be briefly summarized as (1) tapping, (2) drainage, (3) marsupialization and (4) extirpation.

The tapping technic, first advocated by Dandy,[4] is considered the treatment of choice by some surgeons under specific conditions. However, in my personal estimation drainage of the brain abscess as advocated by Dowman,[5] Craig,[10] Adson,[11] and others seems to be the treatment of choice in the vast majority of cases. This is accomplished by an appropriate entry into the skull designed to effect the most dependent approach into the abscess so that gravity may facilitate the drainage. The smallest opening in the cranium for the purpose of exploration is the best as this precludes herniation of cortex which generally ensues when wide exposures are employed. The second stage operation such as designed by Lemaitre[8] in 1920 is still employed by a great many surgeons and is no doubt an excellent method. By this method a primary operation is done at which time the arachnoid space is excluded by suture, coagulation or escharotics

much as is the mode of dealing with subphrenic abscess.

Marsupialization technic, advised by King[6] in 1924, has now largely been relegated to the background by more improved surgical technics. The objection to King's method is the inevitable cerebral herniation which is quite troublesome to treat, as pointed out in an earlier paper.[9]

More recently it has been the practice of many surgeons, among whom is Lebeau, to advance the theory of complete extirpation of the abscess in toto and without rupture at the first surgical attack.

As may be seen, this procedure is fraught with some difficulty and should, on occasions, be avoided when the abscess involves critical areas of the cerebral cortex.

I feel that perhaps the most efficacious method of dealing surgically with brain abscess is the employment of the drainage technic in the first stage, after which the resultant contracted scar or the whole cerebral lobe may be amputated if the sequelae warrant such radical procedures.

Sequelae.—The neurologic residue resulting from surgical manipulation of brain abscess is quite variable and the symptomatology may result in any type of paresis or plegia depending upon the intracerebral location of the lesion. For a like reason various types of anopsias frequently are met with following surgical eradication of abscess.

However, of all the complications incident to brain abscess and even its successful treatment, the most awesome is convulsive phenomena. It seems that these seizures occur in approximately 40 per cent of the patients who suffer from brain abscess after the successful treatment of the disease. This is a latent and long-standing complication which is extremely troublesome to treat and is the one sequela which generally dictates reentry into the skull and amputation of the former abscess area.

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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

A PATHOLOGIST LOOKS AT TB

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 9, September, 1947.

The autopsy records for the past ten years at Bellevue Hospital (New York City) reveal some important facts about the tuberculosis problem in this large metropolitan institution. Much of the information in these records is not found in death certificates and hence does not appear in vital statistics.

In the period from 1935 to 1945, 7,631 complete post-mortem examinations were done on individuals over 16 years of age, from all hospital services. One case out of every 10 examined revealed tuberculous cavitation. Tuberculosis as the cause of death in the whole group showed the highest rate between the ages of 16 and 40. However, two out of three of all the "spreaders" of tubercle bacilli were over 40 years of age, with many of them dying from causes other than tuberculosis. Most deaths from all causes in hospitals are in individuals over 40 years of age. In the epidemiology of tuberculosis the number of cases "spreading" the infection—not the mortality rate within a certain age group—is the important and too often overlooked fact in the attack upon the tubercle bacillus.

The records of the cases with tuberculous cavity formation shows that 13 out of every 100 were not recognized clinically. Eight out of every 10 of the unrecognized cases were in individuals over 50 years of age.

The reasons for this situation may be many, but three are outstanding. First, a disease of more serious immediate concern was the reason why the individual became a hospital patient. Second, nontuberculous lung diseases are more common in older persons which makes a correct diagnosis of tuberculosis more difficult. Third, the old dictum that serious tuberculosis is rarely acquired after 40 years of age has tended to dull medical thought about this disease in older persons unless there is a history of tuberculosis. A case with a cancer and a tuberculous cavity may die from the cancer but the spread of tubercle bacilli can be just as effective as if the whole process were tuberculous in nature. From these data, it is easy to see why the program to x-ray the chests of all hospital admissions and out-patients is of great importance.

The tuberculosis problem in a hospital may not truly reflect that of the community, for only those with serious illness will be represented. For the past two and one half years an opportunity has been given to examine all cases of unexpected deaths, including deaths from accident, from suicide, from homicide and from obscure causes in Manhattan. The group is a representative cross-section, though small, of the inhabitants of New York City.

In this discussion, only the presence of tuberculous cavity will be considered, for this group represents the "spreaders" of the tubercle bacillus. In a group of 1,235 adults over 20 years of age, tuberculous cavity formation was observed in one of every 20 cases. No tuberculous cavity was found in 100 individuals under 20 years of age. One in every 16 white males, one in every 24 Negro males, one in every 30 Negro females and one in every 116 white females showed tuberculous cavity formation. In this group, open tuberculosis with cavity was present four times more often in the adult male than in the adult female. In males over 30, six out of every 100 showed the presence of tuberculous cavity.

From these few figures, an idea of the tuberculosis problem on this congested island is obtained. The individuals in the group examined represented many occupations—salesman, waiter, porter, housemaid, truck driver, bartender, elevator operator, auditor, clerk, gangster, etc. Supposedly they were well and at work yesterday—today they are found dead. Among them, it was unusual to unearth a known tuberculous case. The cause of death given by the Medical Examiner's Office reveals that in only one fifth of these cavity cases is tuberculosis set down as the cause of death.

This shows how an erroneous idea may be obtained with regard to tuberculosis when data from death registration receive undue weight. This also shows that if x-ray surveys are to be effective, every adult, especially all males, in a community should be included.

The socio-economic problem presented by the above figures looms large. It is the breadwinner who is most often infected. Those who mingle most in masses of humanity are the ones who most frequently contract a serious infection and who spread the infection most. No adult age group escapes and the problem of tuberculosis control demands maximum efforts to prevent exposure of adults to infection.

The decrease in tuberculosis in the very young has led some to believe that, if we rear a population free from tuberculous infection, the problem of tuberculosis will be solved. No reasoning could be more unsound. There is plenty of evidence that young adults with negative tuberculin reactions can die from an infection acquired in adult life.

In the solution of the problem of tuberculosis the fullest cooperation of an enlightened public opinion is urgently needed. Any community with pride in the health of its citizens; with a compassion for those who, through no fault of their own, become ill; and with sure justice for those recalcitrants who knowingly endanger others can go far in the struggle against the tubercle bacillus. The crucial battle has barely begun. Let us see it through to success.

A Pathologist Looks at TB, Edgar M. Medlar, M.D., Bulletin of the National Tuberculosis Association, January, 1947.

BOOK REVIEW

Common Contagious Diseases, A Manual of the, by Philip Moen Stimson, A.B., M.D., Associate Professor of Clinical Pediatrics, Cornell University Medical College; Visiting Physician, Willard Parker Hospital; Director Poliomyelitis Service, The Knickerbocker Hospital; Medical Director, The Floating Hospital of St. John's Guild; Associate Attending Pediatrician, The New York Hospital; Consulting Pediatrician, The Meadowbrook, Bergen Pines, and Norwegian Lutheran, Hospitals. Fourth Edition, Thoroughly Revised with 67 Illustrations and 8 plates, 6 in color. Lea & Febiger, Philadelphia. 1947. Price $4.00.

This handy book has become a favoriate of resident pediatricians in hospitals or hospital divisions devoted to the care of the contagious diseases, and has acquired a useful place on the shelves of any pediatric department. It is reliable, concise and practical. The final chapter in this book on "The Management of Contagious Diseases in Hospitals" deserves the most praise since the description of hospital procedures is lacking in most textbooks on pediatrics.

A tremendous change in the treatment of the contagious diseases advocated is noted in this edition. The sulfonamides and antibiotics are now effectively prescribed for nearly all contagious diseases caused by bacteria. Practical directions for the administration of these drugs is brief but adequate.

Special stress is laid upon the treatment of severe and neglected cases usually seen in hospitals. Only the serum treatment is advised for the treatment of diphtheria, but the use of penicillin as an adjuvant may be considered in some cases.

The author still adheres to the serum treatment of scarlet fever for all severe cases. Most physicians in the practice in the home have had excellent results from the sulfonomide drugs, but penicillin is occasionally prescribed instead. The author is correct in advising the serum treatment in malignant and toxic cases. He admits that the sulfonomide therapy has superceded the serum treatment in cases of cerebrospinal fever.

So many of the contagious diseases are caused by a virus infection and against these neither the sulfa drugs nor antibiotics have any appreciable therapeutic value.

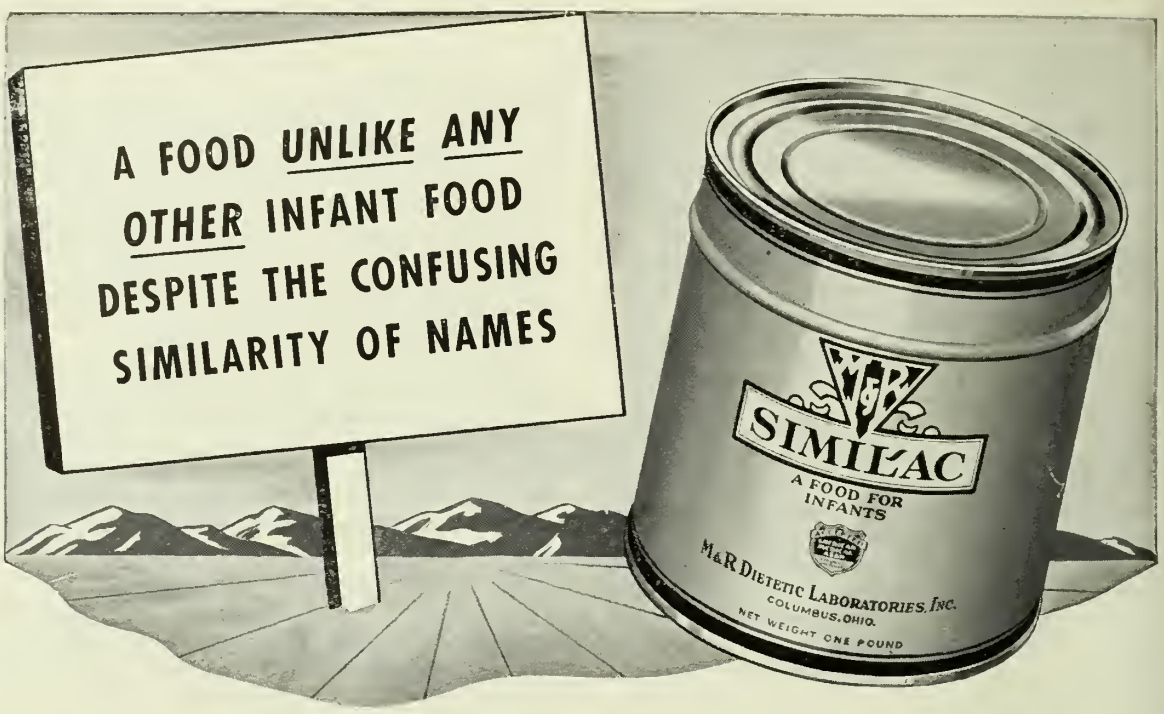
It is still unproven that poliomyelitis is contagious, but it is wise to isolate patients suffering from this disease. Hospitalization, however, is not always necessary.

A few critical suggestions can be offered without detracting from the excellence of this manual.

Hospitals for contagious diseases serve as dumping grounds for many diseases, the contagiousness of which are doubtful—such as poliomyelitis for example. There are other diseases such as typhoid, tularemia, Rocky Mountain fever that are treated in such hospitals. At least a short descriptive sketch of such diseases would be helpful. Why does the writer place Vincent's angina in this category and leave out ulcerative stomatitis?

More stress should be laid on air-borne infections. A medical aseptic technic cannot prevent cross infections if this mode of transmission is relegated to a secondary role. The aseptic technic is effective only in bacterial diseases, not in virus diseases which are generally airborne.

I believe that this manual for the medical student is unexcelled. I regret that the contents embrace only a description of eleven diseases; several more might be added with profit. J. Z.



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SEPTEMBER, 1947

EDITORIALS

CARE OF VETERANS BY PRIVATE PRACTITIONERS

The agreement with the Veterans Administration for the participation of private practitioners in the examination and treatment of veterans has been placed in effect. This is a part of the plan of the Veterans Administration to furnish medical care to veterans near their place of residence. The names of physicians who stated their desire to participate in the program have been given to the Veterans Administration. Material concerning the program will be sent to these physicians by the Veterans Administration. The agreement under which the plan will be carried out appears on page 692.

MEDICAL EDUCATION IN THE UNITED STATES

The American Medical Association announced recently that 70 per cent of the 6,252 students who have been selected as freshmen to enter medical schools and schools of basic sciences in the United States in 1947 are war veterans.

The freshmen students selected up to June 1947 include 4,399 male veterans (70 per cent), 1,301 other men (21 per cent) and 598 women (9 per cent). Forty-seven of the women are veterans.

These figures are contained in the 47th annual report on medical education in the United States and Canada by the Council on Medical Education and Hospitals of the American Medical Association. The report which is published in the August 16 issue of *The Journal of the American Medical Association*, states that in 10 schools present figures indicate that the freshman classes in 1947-48 will be at least 10 per cent larger than those enrolled in 1941-42.

The report points out that "during the five year period July 1, 1942, to June 30, 1947, a total of 406 graduations have been held. This figure does not include the graduations at Tennessee, which were on a quarterly schedule.

"On the prewar schedule of one graduation for each school per calendar year the normal number of graduations for this period for the schools in the United States, excluding Tennessee, would have been 336. The accelerated program thus made possible the training and graduation of 70 additional classes in a five year period."

The council's report on the total enrollment for 1946-47, excluding students taking a required intern year, in the 70 medical and seven basic science schools in the United States was 23,900, of which 13,308, or 55.6 per cent were veterans. This enrollment, states the report, is 684 greater than the enrollment for 1945-46 and is only 766 less than the enrollment of 24,666 for the 1944 "second session," the largest enrollment since 1910.

"From these figures," states the council, "it is apparent that in the first approximately normal postwar year the enrollment in medical schools in the United States has been maintained at nearly a peak figure. It is thus clear that the record of medical education in reconverting to a peacetime status can be compared favorably to the reconversion efforts of other groups in our society."

The council points out that in 1946-47 there were 2,183 women students, or 9.1 per cent of the total students enrolled in the United States. This is the highest absolute as well as relative number of women medical students in the United States on record. The highest percentage of women was in the freshman class, in which women students numbered 11.1 per cent.

During the period July 1, 1937, to June 30, 1942, when 25,818 physicians were graduated, 18,988 physicians were reported to have died. Thus the net increase in the number of physicians for that five year period was 6,920. During the five year period July 1, 1942, to June 30, 1947, 32,877 physisians were graduated and 16,435 died, making a net increase of 16,442.

The report points to the more than 100 per cent increase in the number of approved residencies in civilian hospitals in the United States since 1941. It states that "the present total of 12,003 residencies as compared with 5,256 at the beginning of the war illustrates not only the tremendous expansion that has taken place in recent years but reflects also the generous cooperation and support of the large number of physicians, hospitals, medical schools and other agencies through whose efforts the development of additional residency training programs has been made possible. In 1941 the hospitals approved by the American Medical Association for the training of resident physicians totaled 610. This number has now increased to 1,017, including nine hospitals of the Army, 16 of the Navy, eight of the U. S. Public Health Service and 51 of the Veterans Administration."

KANSAS CITY SOUTHWEST CLINICAL SOCIETY TO HOLD SILVER ANNIVERSARY CONFERENCE

The Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held in the Municipal Auditorium and Hotel President,

Kansas City, from October 6 to 9, 1947. The list of guest speakers who will participate in the four day conference appear on page 645 of this issue of The Journal. These outstanding teachers will take part in the general assemblies, round table luncheon question and answer periods and the sectional lecture series.

Five series of sectional group lectures will be presented concurrently on the mornings of October 7, 8 and 9, on problems of interest to physicians in their daily practice, many accompanied by patient demonstration.

Two round table luncheons will be held daily, one for the medical group and one for the surgical group. This is a part of the scientific program and ample time will be allowed following the luncheons for direct questions to any of the guest speakers.

A joint meeting with the county medical societies will be held on Monday evening. This will be a clinicopathologic conference directed by Ferdinand C. Helwig, M.D., Kansas City, with Drs. William E. Adams, Robert Elman, George Ewell, Howard K. Gray, Russell L. Haden, John S. Lockwood, Robert A. Moore, Eugene Pendergrass, Leon Schiff and Willard Thompson participating.

Tuesday evening's "Stag Party" will provide entertainment and excellent food from the President's cuisine.

Additional features include scientific exhibits and movies; technical exhibits and radio broadcasts by their guest speakers. Special arrangements have been made by the women's committee to entertain the wives of registrants.

The complete program will appear in the September-October issue of the *Kansas City Medical Journal* which will be issued in mid-September.

NEWS NOTES

Missouri State Medical Board Examinations will be given on October 20, 21, 22, 1947, in St. Louis by the State Board of Medical Examiners of Missouri.

William W. Stanbro, M.D., St. Louis, has been named chief roentgenologist at the George Washington University Hospital and assistant professor of radiology of the George Washington University, Washington, D. C.

The Excelsior Surgical Club, a national organization of surgeons who served in the Mediterranean Theater during World War II, will meet in St. Louis on October 17 and 18. The meeting will open with the Edward D. Churchill Lecture presented by Evarts A. Graham, M.D., St. Louis, at the St. Louis Medical Society at 8:30 p. m. on October 17. The lecture was inaugurated in 1946 in honor of Dr. Churchill, the John Homans Professor of Surgery of Massachusetts General Hospital, who was Chief Surgical Consultant in the Mediterranean Theater of Operations during World War II.

Lawrence T. Post, M.D., St. Louis, has been awarded the Lucien Howe medal of the American Ophthalmological Society in recognition of his work in teaching and leadership in study of eye diseases. The award was made at the society's meeting in Hot Springs, Virginia.

Frederick A. Johansen, M.D., formerly of Kahoka, has been appointed Medical Officer in Charge of the U. S. Marine Hospital, Carville, Louisiana.

David Littauer, M.D., Kansas City, director, Menorah Hospital, and G. D. Kettelkamp, M.D., Koch, superintendent, Department of Public Welfare, Hospital Division, St. Louis, will appear on the program of the forty-ninth annual convention of the American Hospital Association which will be held in St. Louis September 22 to 25.

The Executive Committee of the American Academy of General Practice of Greater St. Louis has now issued the second number of its new bulletin, *News and Views*. Copies of the bulletin may be obtained by writing *News and Views*, 4991 Thrust Avenue, St. Louis 20.

MISCELLANY

AGREEMENT WITH VETERANS ADMINISTRATION

The Missouri State Medical Association and the Veterans Administration for the purpose of establishing and maintaining a close working relationship in order to establish a well integrated service for providing medical care and treatment for veterans of the State of Missouri, beyond those services available to the Veterans Administration in existing Veterans Administration facilities and installations, do hereby mutually agree as follows:

(1) The Missouri State Medical Association will request all of its members to participate in a state-wide program whereby physicians in private practice in the State of Missouri will render medical services (examinations, treatments and counsel) in such cases as may be specifically authorized by the Veterans Administration.

(2) The Missouri State Medical Association will submit to the Veterans Administration a list of its members who desire to provide service for eligible veterans in the home communities of such veterans. This list may be augmented from time to time as additional physicians may indicate a desire to participate in the program. The physicians so listed will be fee-basis physicians of the Veterans Administration. By notice in writing a physician may at any time request that his name be removed from the list of fee-basis physicians.

(3) The Missouri State Medical Association will assist the Veterans Administration in establishing, for examinations and treatment, a list of competent specialists who meet the qualifications of specialist of the Veterans Administration.

(4) Lists of physicians submitted by the Missouri

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**Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154.*
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60.

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State Medical Association will be broken down by counties or districts in order that the veterans for whom services are authorized may select a physician practicing in his home community. The choice of the physician by the veteran, provided for herein, is not applicable to examinations for pension or compensation rating purposes. Such examinations may be performed only by a physician specifically designated for that purpose by the Veterans Administration.

(5) Fees for medical services in authorized cases shall be paid by the Veterans Administration to the physician rendering the service in accordance with the Fee Schedule hereto attached, which is made a part of this Agreement. The Missouri State Medical Association warrants that the rates set forth herein are not in excess of the rate of fees charged other persons who are not Veterans Administration beneficiaries for the same or comparable services. It is mutually understood that the fees stated in the Fee Schedule represents the maximum amount that may be charged, and do not represent the amount to be paid in every case. The Veterans Administration will advise each physician of this provision, and will require each physician to certify in submitting his statement of account that the fees charged are not in excess of the fees charged by him for comparable service rendered non-veterans. It is understood that unusually involved cases and services not scheduled will be subject to review and recommendation by the Missouri State Medical Association to the Veterans Administration for determination of the appropriate fee.

(6) The Veterans Administration will handle administrative and clerical details in connection with the authorization of examinations or treatments and the maintenance of records; and will arrange for transportation of the veteran if necessary.

(7) When authorizing treatment, the Veterans Administration will furnish to the veteran, proof of such authorization and a list of fee basis physicians in the county or district in which the veteran is located, in order that he may select his own physician for the services authorized.

(8) The Veterans Administration will review reports of examinations and services to determine their adequacy. No fees will be paid by the Veterans Administration for reports which are not acceptable to the Veterans Administration or for services rendered in unauthorized cases.

(9) The Missouri State Medical Association will establish one or more boards of review composed of physicians. It shall be the duty of such board to review reports, which are deemed by the Veterans Administration to be inadequate or which do not meet the requirements of the Veterans Administration; to recommend, at its discretion, the disqualification of any physician for further work with the Veterans Administration whose work is found by the board to be incomplete or unsatisfactory; to advise and assist the Veterans Administration on other matters within the scope of this program.

(10) It is agreed that services furnished under the agreement will be performed by licensed physicians. It is further agreed that physicians rendering services hereunder will be citizens of the United States who are doctors of medicine duly licensed to practice medicine and surgery in the State of Missouri.

(11) This Agreement shall be effective from July 18, 1947, to June 30, 1948, and may be terminated by either party by giving thirty (30) days written notice to that effect.

(12) This Agreement, if mutually satisfactory, may be renewed indefinitely for a period of one (1) year each, upon notice in writing to the Missouri State Medical Association at least sixty (60) days prior to the expiration of each period of one (1) year, and written statement from the Missouri State Medical Association within thirty (30) days after such notification agreeing to the renewal.

(13) No Member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this agreement or to any benefit that may arise therefrom unless it be made with a corporation for its general benefit.

(14) The Missouri State Medical Association agrees that in performing this Agreement it will not discriminate against any employee or applicant for employment because of race, creed, color or national origin.

(15) The Missouri State Medical Association does not propose to make any charge for any service rendered to the Veterans Administration under this Agreement.

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for September and October, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

September 3: Miscellaneous.
September 5: Gynecologic and Genitourinary.
September 10: Skin.
September 12: Breast.
September 17: Gastrointestinal.
September 19: Cervix.
September 24: Skin.
September 26: Head and Neck.
October 1: Miscellaneous.
October 3: Gynecologic and Genitourinary.
October 8: Skin.
October 10: Breast.
October 15: Gastrointestinal.
October 17: Cervix.
October 22: Skin.
October 24: Head and Neck.
October 29: Bone and Lymphomas.
October 31: Miscellaneous.

SOCIETY PROCEEDINGS

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society held a dinner meeting at the El Patio Hotel, Cabool, on July 18, with the following members and guests present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., R. W. Denney, M.D., H. G. Frame, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; R. T. Harsh, M.D., Houston; Leslie Randal, M.D., and H. L. Reed, M.D., Licking; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains; R. A. Ryan, Jr., M.D., St. Louis; William J. Stewart, M.D., and David LeMone, M.D., Columbia.

The subject of illegal practitioners of medicine was discussed and the following committees were appointed to take the matter up with the prosecuting attorneys: Drs. Harsh, Randall and Hogg, Texas County; Drs. Mott, Fuson and Denney, Wright County; Drs. Smith, Bohrer and Callihan, Howell County.

Upon motion, sympathy was expressed to Dr. Mott in the death of his daughter.



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The use of Benzedrine Sulfate alone ordinarily should achieve the desired appetite reduction. Combinations of amphetamine and thyroid serve no useful purpose and may even be dangerous. In this connection, a recent report of the Council (*Drugs for Obesity*, J. A. M. A., June 7, 1947) says: "The fallacy and dangers of overstimulating the body with thyroid and of using laxatives to aid in reduction are well known to the medical profession."

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Dr. LeMone showed roentgen ray films of the abdomen and pelvis, pointing out the importance of taking such films in various conditions as an aid to making a diagnosis before undertaking treatment.

Dr. Stewart spoke on "Sprains of the Ankle and Wrist," showing films in illustration.

Both talks were highly appreciated and a vote of thanks was given the speakers.

The meeting adjourned to meet in Mountain Grove on August 15.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

PHYSICIAN'S HANDBOOK, Fourth Edition by John Warkentin, Ph.D., M.D., and Jack D. Lange, M.S., M.D. Price $1.50. University Medical Publishers, Post Office Box No. 5067, Chicago, Ill.

This book is just what the name implies. Diagnostic procedures and factual data which a physician would like to have quickly available are summarized concisely and clearly. It is easy to criticize a book of this kind. Many items are so trivial they might well have been left out. Many statements are not quite adequate. One finds, however, no serious fault. For ready reference, many physicians will find it quite useful.

H. A. B.

DISEASES OF THE RETINA. By Herman Elwyn, M.D., Senior Assistant Surgeon, New York Eye and Ear Infirmary. With 170 Illustrations, 19 in Color. The Blakiston Company, Philadelphia, Toronto. 1946. Price $10.00.

This is the first text printed in English on this subject alone and, indeed, not since Leber's book in 1916 has this subject been treated alone in a single volume. However, one must not overlook the fact that in Duke-Elder's comprehensive text on "Ophthalmology," the chapter on disease of the retina gives a most thorough discussion in English, and references are in greater number and variety. In addition, several American, English and non-English authors have included excellent chapters on the retina in their texts.

One factor stressed by Elwyn is the physiology of the retinal circulation and its pathology which has been better understood in the last decade. He is to be congratulated on this thorough summation. The illustrations in part are originals of the author, especially those depicting the pathology; others are obtained from excellent authorities, mostly of recent date, and add much to the volume. The printing is of the best. The index is small and does not include an author's index which is understandable due to the relatively few references included.

L. L. M.

MENTAL MISCHIEF AND EMOTIONAL CONFLICTS, Psychiatry and Psychology in Plain English, by William S. Sadler, M.D., F.A.P.A., Chicago, Consulting Psychiatrist, Columbus Hospital. C. V. Mosby Company, St. Louis. 1947. Price $6.00.

This is a superficial work which skims over many subjects but contributes little to any of them. The subjects treated vary from broad types to single symptoms with little order or system or attempt to apply principles. There is this negatively in the book's favor that it does not slavishly depend on psychoanalysis for any effort at discussion and elucidation. In so far it is original, these days, and possess possibilities. It is difficult to say who would derive benefit from the book but perhaps the physician aside from the psychiatrist and the layman would gain something.

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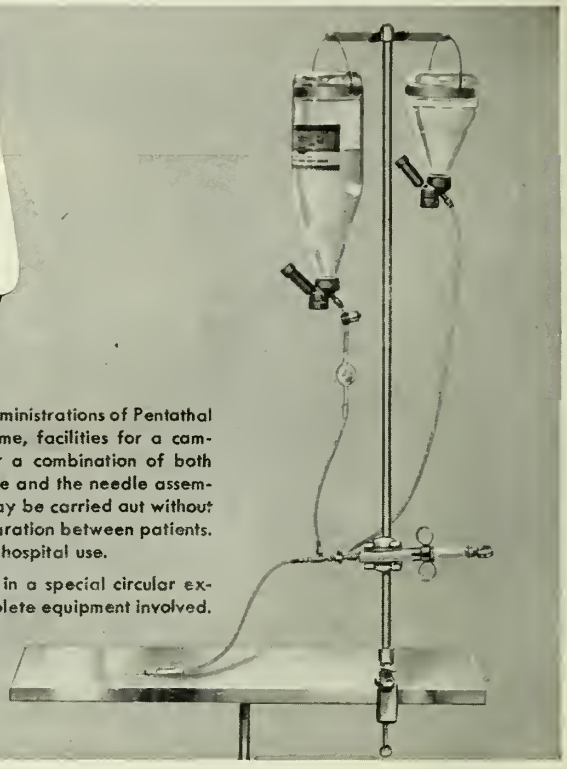
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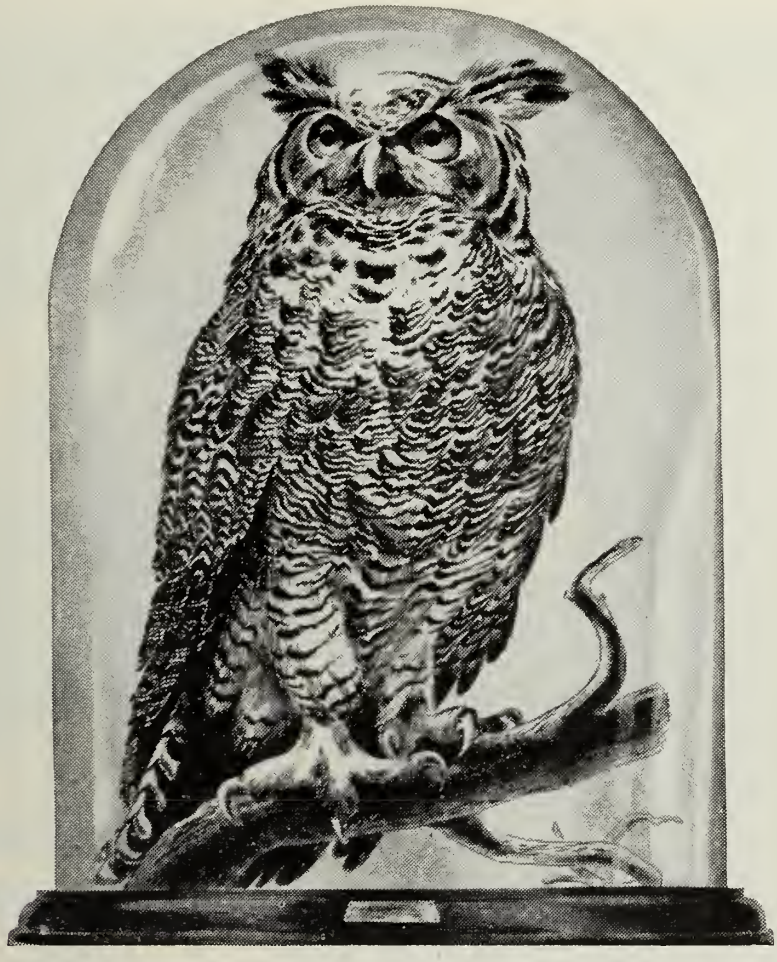


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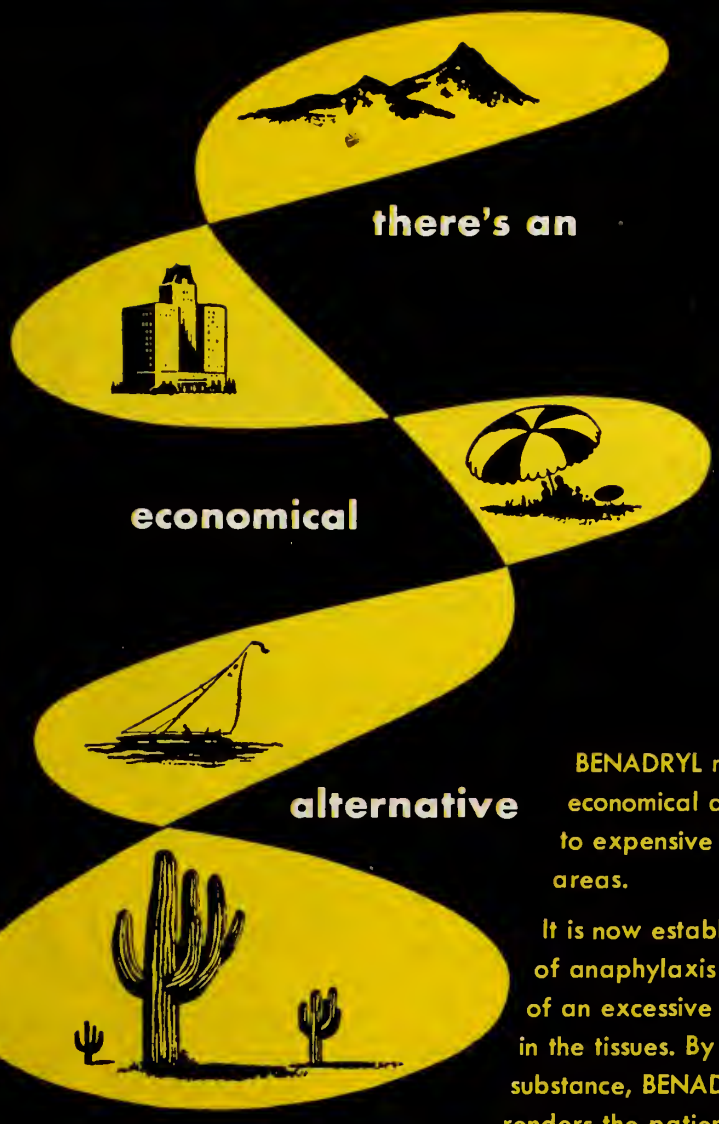
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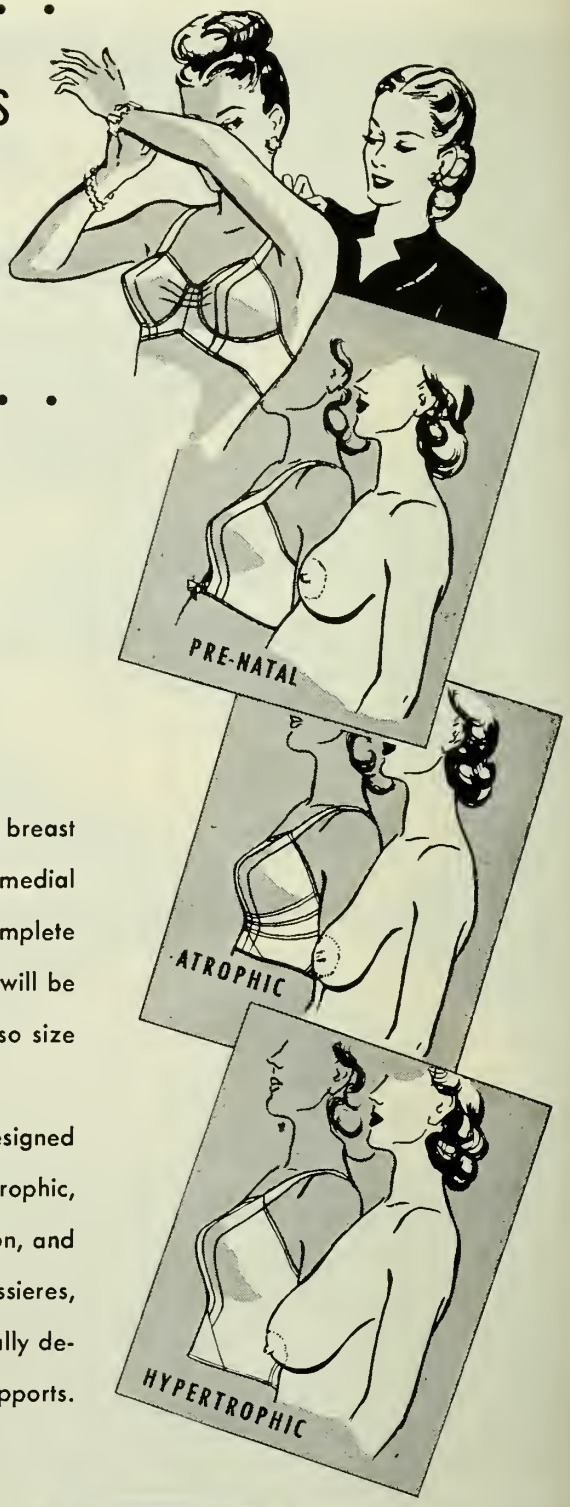
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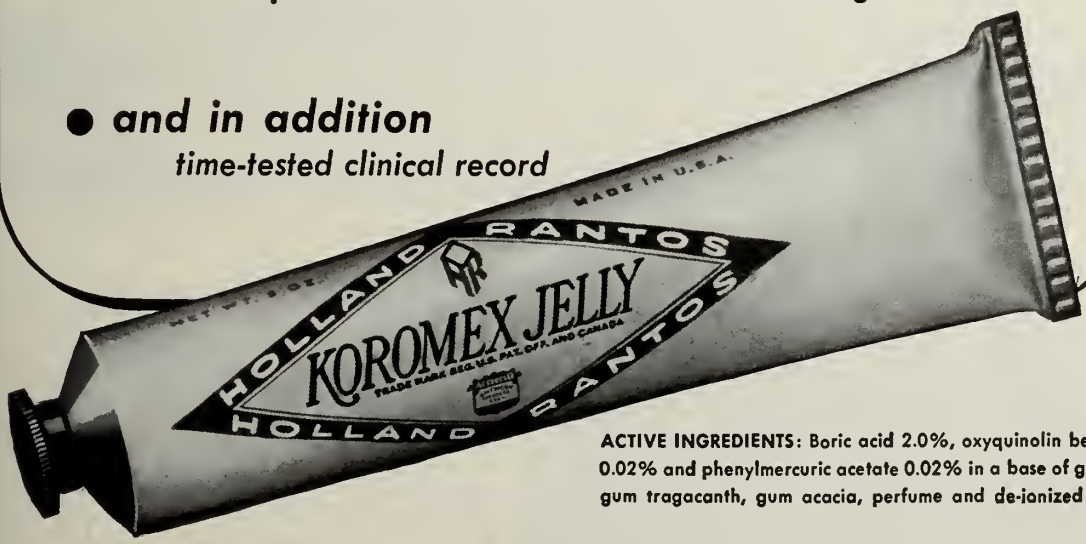
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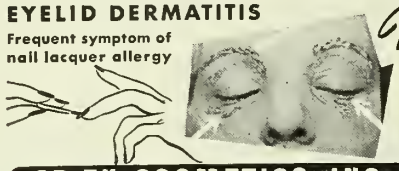
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While our products are free from so-called common cosmetics allergens, such as orris root and rice starch, we feel it should be made clear that any of their normally innocuous ingredients might be allergenic to the allergic individual. It is our practice to write our patrons a letter to this effect when a history of allergy is involved.

It is our experience that many persons with allergic constitutions cannot tolerate scented cosmetics; therefore we routinely recommend and select unscented products when there is a history or suspicion of allergy. This practice is not to imply or suggest that the subject is sensitized to perfume; it is solely to safeguard against the possibility.

In specific cases of allergy or suspected allergy, when the subject is using or contemplates using our products, we are pleased on his request to send her doctor the involved raw materials for patch testing, also such information concerning our products as may have a bearing on the case.

Since in the light of present knowledge it is not possible, save in specific cases, to make non-allergenic cosmetics, we believe the cosmetic requirements of the allergic individual should be considerd by her doctor in the light of the formulas and general characteristics of the products she is using or contemplates using.

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American Meat Institute 644
Ar-Ex Cosmetics, Inc. 706
Arlington Chemical Co. 683
Ayerst, McKenno & Harrison 642

Boscherdt Malt Extract Co. 706
Borden Company 666
Burroughs Wellcome & Co. 669

Camel Cigarettes 643
Camp, S. H. & Company 696
Ciba Pharmaceutical Products, Inc. 649
Ciba Pharmaceutical Products, Inc. ..... Insert
Coca-Cola Company 697
Commercial Solvents Corporation 636
Cook County Graduate School of Medicine 685

Denver Chemical Mfg. Co. 698
Duncan Laboratories 709

Faith Hospital 702

General Electric X-ray Corporation 673
Glenwood Sanatorium 645
Gradwohl School of Laboratory Technique 708

Hamilton-Schmidt Surgical Co. 706
Hanger, J. E., Inc. 708
Holland-Rantos Company 705

Isle, W. E., Company 702

Kansas City Southwest Clinical Society 645

Lilly, Eli and Company ..... Insert
Lov-e Brassiere Company 704
Luzier's Inc. 707

M & R Dietetic Laboratories, Inc. 609
Major Clinic Association 637
Mead Johnson & Company 712
Medical Protective Company 686
Milwaukee Sanitarium 675
Miscellaneous Announcements 710
Mosby, C. V. Company 650
Mullen Ambulance Company 702

National Drug Company 665
National Pathological Laboratory 710
Norbury Sanatorium 700
North Shore Health Resort 708

Parke, Davis & Company 634, 635, 703
Philip Morris & Company 693
Physicians Casualty Association 685
Pogue, Mary E. School 706
Producers Creamery Company 685

Quincy X-ray and Rahium Laboratories 706

Ralph Sanitarium 648
Robinson Clinic 702

Schering Corporation 671
Schmid, Julius, Inc. 646
Searle, G. D. & Company 663
Smith-Dorsey Company 681
Smith, Kline & French Laboratories 695
Squibb, E. R. & Sons 639
Stokes Sanitarium 710
Swift & Company 677

United-Rexall Drug Co. 701
U. S. Brewers Foundation, Inc. 679
U. S. Savings Bond 711

Wallace Sanitarium 702
Washington University School of Medicine 710
White Laboratories, Inc. ..... Insert
Winthrop Chemical Company 641
Worrell, Dorothy 710
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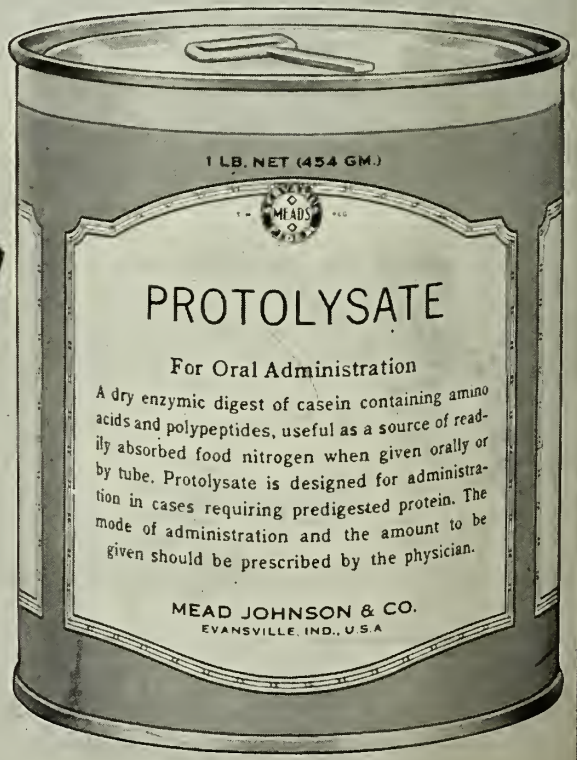
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(Contents Index Page 717)

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CONTENTS

Uterine Ring Dystocia. Herman W. Johnson, M.D., Houston, Texas 729

The Diagnosis and Treatment of Lesions of the Bronchial Tree. Arthur M. Olson, M.D., Rochester, Minnesota 731

Some Clinical Experiences in the European Theater of Operations. William S. Middleton, M.D., Madison, Wisconsin 735

Nutritional Deficiencies as a Cause of Disease. Wendell H. Griffith, Ph.D., St. Louis, Mo. 738

Some Nutritional Pitfalls in General Hospitals. Garfield G. Duncan, M.D., William S. M. Ling, M.D., Ruth J. Floeck, B.S., Edith S. Grand, M.A., Philadelphia, Pa. 743

Condyloma Acuminatum. Mark M. Marks, M.D., Kansas City, Mo. 749

Studies on Translumbar Aortography. A. E. Vitt, M.D., and W. F. Melick, M.D., St. Louis, Mo. 749

Visualization of the Maternal Circulation at the Site of the Placenta (Placentagrams). Leo J. Hartnett, M.D., St. Louis, Mo. 754

Early Postpartum Ambulation. William L. Smiley, M.D., St. Louis, Mo. 756

Abstracts and Digests—
Carcinoma Simulating Pulmonary Tuberculosis 758

Book Reviews 760, 765, 766

Editorials—
Gold Medal for General Practitioner 761
Woman's Auxiliary Essay Contest 761
New Drugs 761

News Notes 762

Deaths 764

Miscellany 764

Society Proceedings 764

Woman's Auxiliary 765

Commercial Announcement 782

Entered as Second-Class Matter, February 18, 1925, at the Post Office at Fulton, Mo., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Business Office, 1201-5 Bluff St., Fulton, Mo., and 623 Missouri Building, St. Louis, Mo., Editorial Office, 623 Missouri Building, St. Louis, Mo. Return postage guaranteed. Printed by The Ovid Bell Press, Inc., Fulton, Mo.

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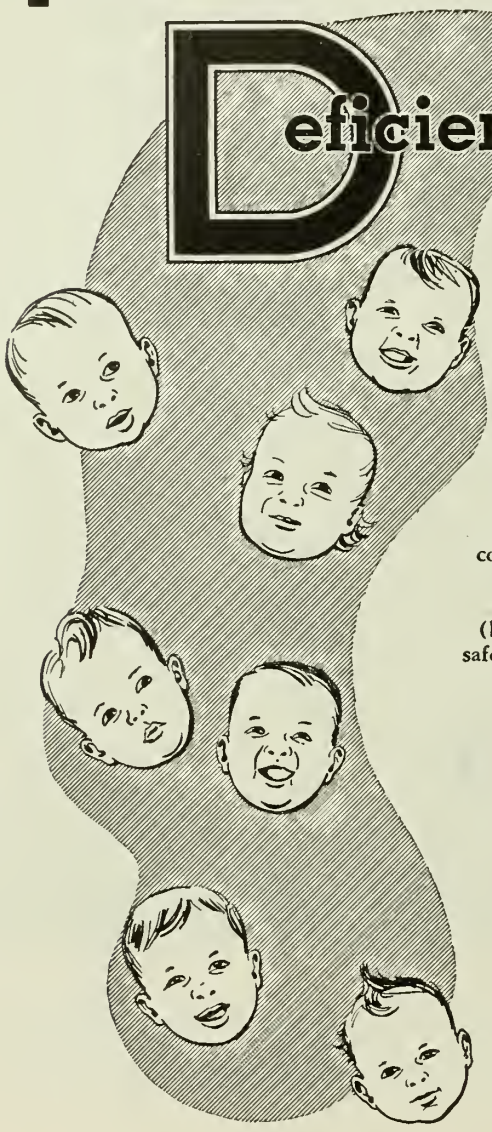
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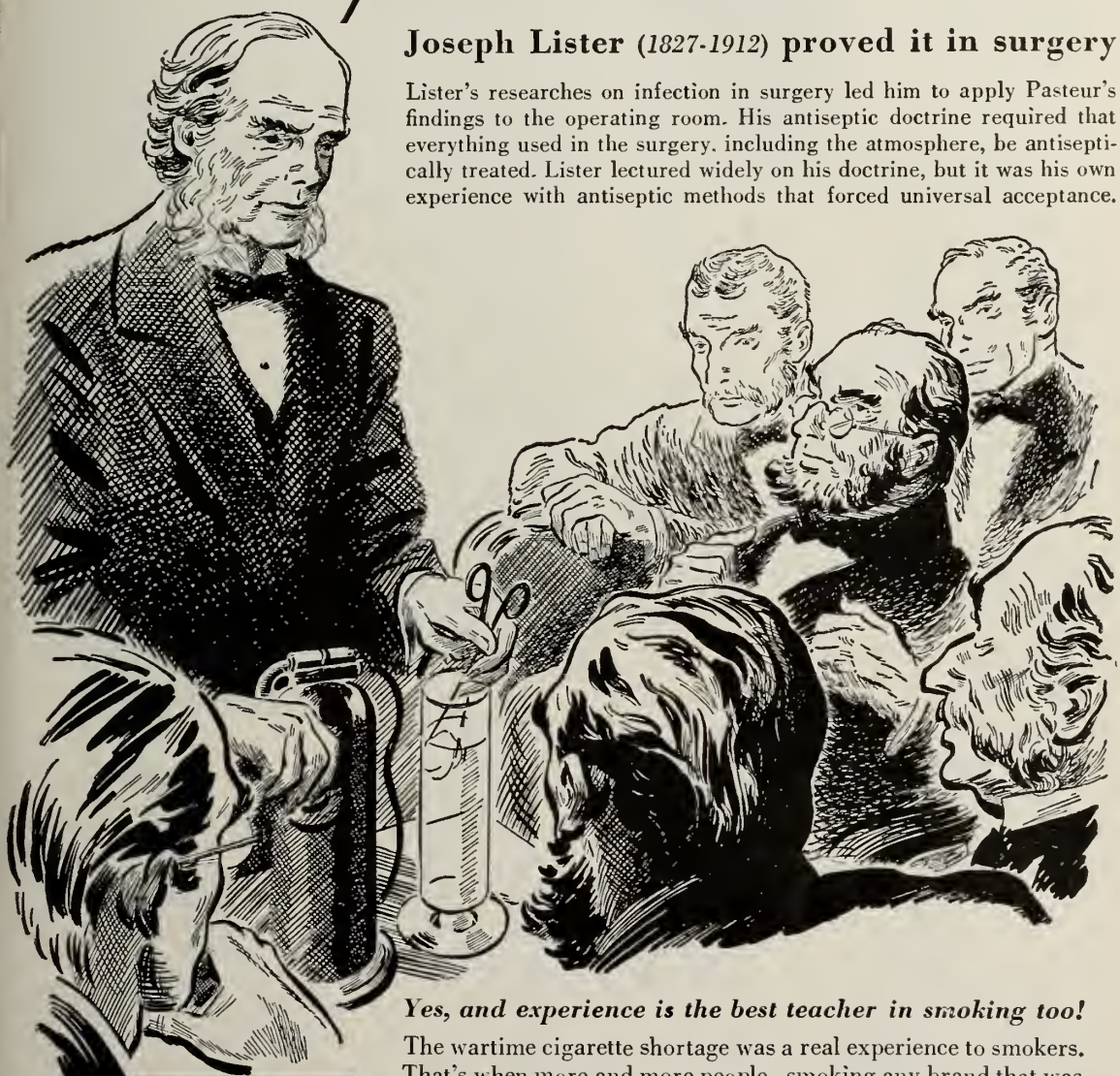
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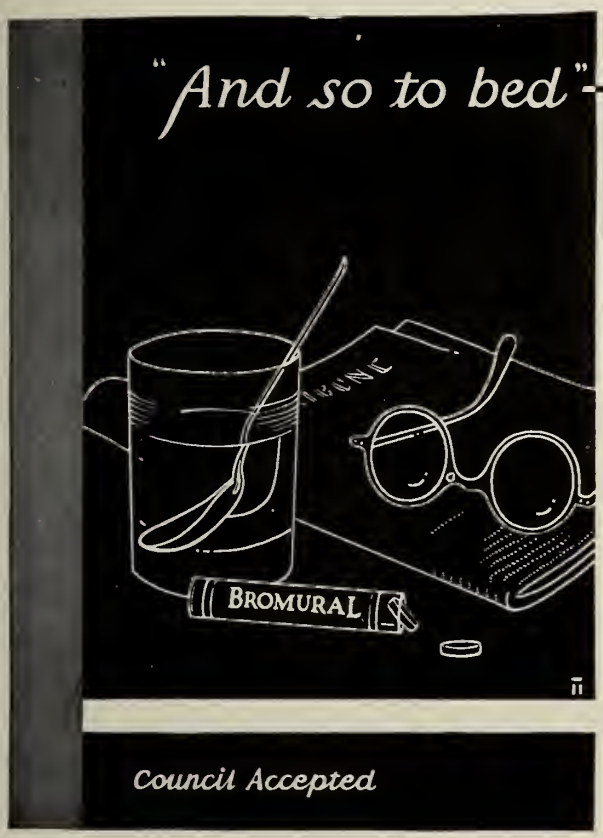
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1. Lennox, W. G. (1947), Tridione in the Treatment of Epilepsy, J. Amer. Med. Assn., 134:138, May 10. 2. DeJong, R. N. (1946), Further Observations on the Use of Tridione in the Control of Psychomotor Attacks, Am. J. Psychiat., 103:162, Sept.

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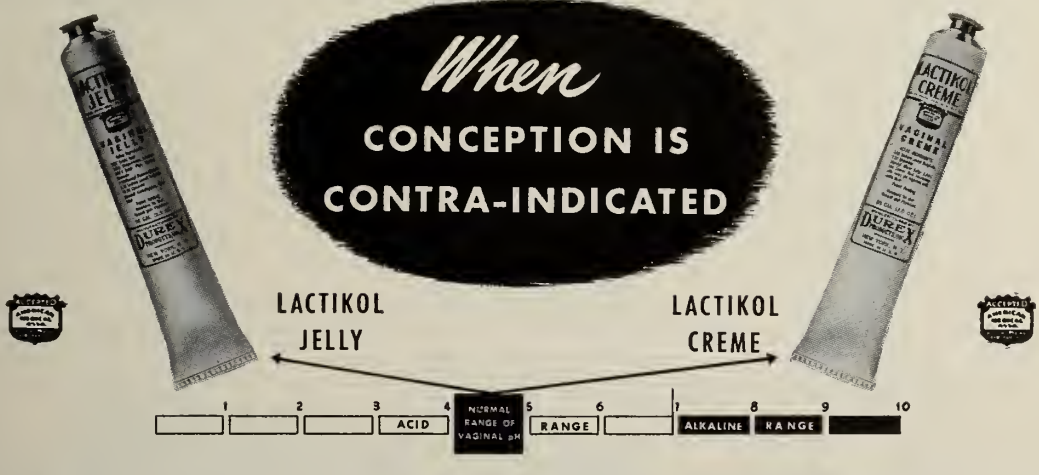
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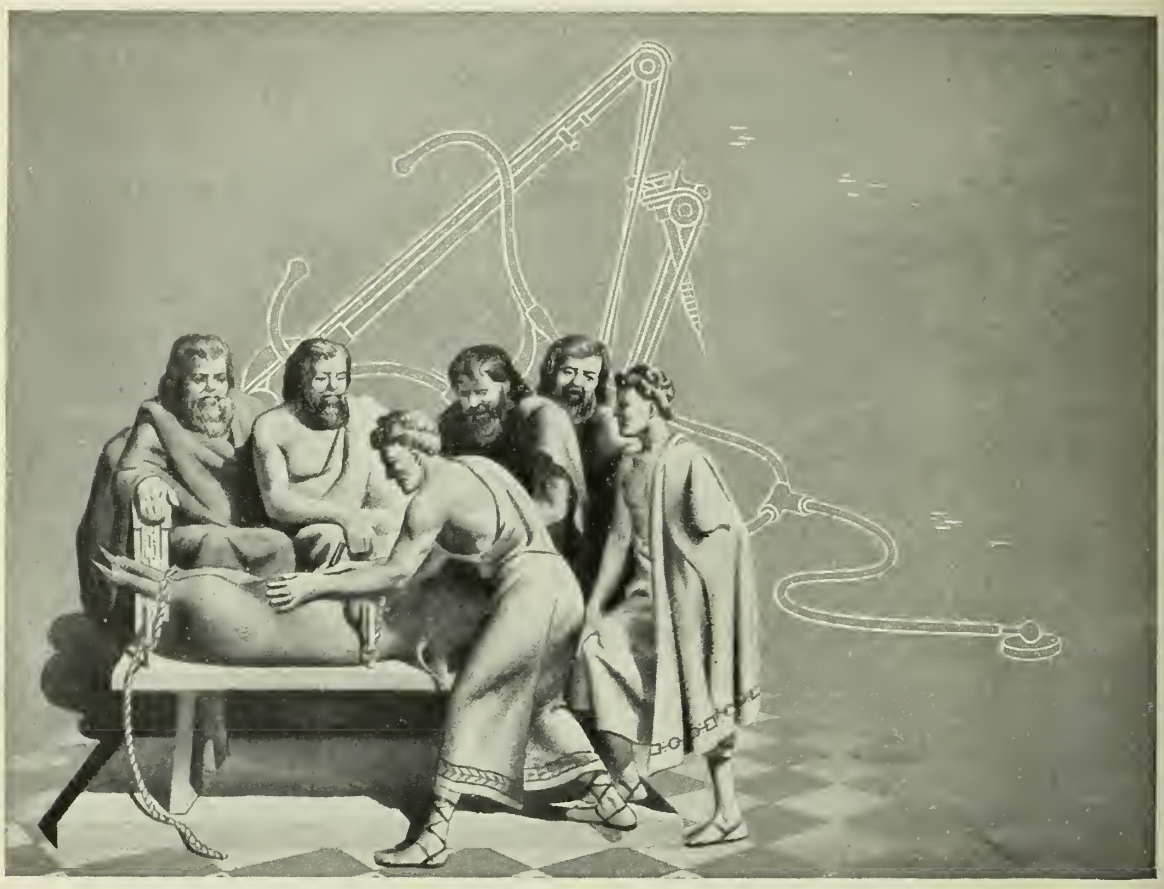


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VOLUME 44 — OCTOBER, 1947 — NUMBER 10

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UTERINE RING DYSTOCIA

HERMAN W. JOHNSON, M.D.
HOUSTON, TEXAS

Uterine ring dystocia may be of some interest to the physician who does not limit his work to obstetrics. Naturally, he cannot read all the journals of the various specialties. The adherence of obstetrics to general practice is still strong and no doubt will remain so for many years. And so it would seem that if advances or phases in this branch of medicine are to be published only in specialty journals, the part time obstetric physician may be denied information of interest to which they are definitely entitled. Much of this paper has appeared in a specialty publication.[1]

A sincere effort will be made not to add further to the existing confusion as to varieties, degrees and terminology of uterine ring dystocia. The clinical aspects will be presented in their simplest form. The term "contraction ring" will be used in strict adherence to "Standard Nomenclature of Diseases and Operations." If some degree of clarification is accomplished, and interest in ring dystocia stimulated so that treatment may not be indefinitely prolonged in these cases, the paper may serve a useful purpose.

In passing, mention scarcely can be avoided of the many mystifying factors now confronting the doctor or student attempting to orient himself in uterine ring dystocia. There are retraction rings, contraction rings and constriction rings. They are spoken of as being passable or impassable, reversable or irreversable. It is probably erroneously claimed that these dystotic rings may occur anywhere from the cervix to the fundus. Then, even though practically all recognize that the lower uterine segment partakes of this entity, yet little agreement is found as to whether this segment forms early or late in pregnancy or is merely a clinical entity developing as labor progresses. And perhaps, finally, one may question whether or not there are just grounds for taking an anatomic landmark, the junction of the lower uterine segment with the body of the uterus, historically described as a ledge or rim, and arbitrarily designating it as a physiologic retraction or constriction ring (retraction or constriction has pathologic implications). To emphasize the ledge, which is important, it might be justifiable to call it the physiologic ledge or ring.

Years ago, just natural curiosity caused me to seek the reason for the unusual delay occurring in the rare cases of obviously unobstructed labors. Bandl's retraction ring of obstructed labor was well known but, in those cases, this could be ruled out. The big bug-a-boo ever haunting the obstetrician in the form of "occiput posterior" seemed an inadequate explanation. Early in medical life, much resistance, even resentment, to the term had been built up. I was and am certain that the dilating cervix of the first stage of labor is not fussy about the position of the presenting pole. Cervical dystocia had to be considered but, even before it was found that the head was not coming against the cervix, it seemed at best an umbiologic explanation—incubating a baby then trapping it. That is what it amounts to with a contraction ring but it at least absolves the cervix and places the blame where it belongs. Uterine inertia could be ruled out because, as will be shown later, the symptoms of inertia are about the opposite of those of a developing or developed contraction ring. In 1937, with the intent of calling attention to a retraction ring of unobstructed labors, a paper was presented before the Texas State Medical Society under the caption of "Obstetric Difficulties Due to Anomalies of the Lower Uterine Segment." Perhaps through faulty titling and originating in the hinterland, the paper received little or no attention.

Inasmuch as this paper deals with clinical obstetrics in the human, the original suggestion that because the rabbit has a segmented uterus, uterine ring dystocia in humans may be atavistic and that

Presented at the 89th Annual Session of the Missouri State Medical Association, Kansas City, March 30-April 2, 1947.
From the Department of Obstetrics, Baylor University College of Medicine, and the Maternity Division of St. Joseph's Infirmary.

the ring may appear anywhere from the cervix to the fundus will now be dismissed with the statement that no patient of mine has been able to trace her lineage that far back. If the vetenarian has some difficulty with constriction ring dystocia, that's his worry and not mine. Also, I have never encountered rings in the various locations mentioned by the advocate of this theory.

The incidence of contraction ring dystocia appears to depend on one's awareness of it. Increasing interest and using a standard nomenclature will give more reliable data eventually. Rucker,[2] in 10,838 deliveries, encountered it once in every fifty-four labors. Baylor University Hospital cases (10,000) showed this to be the cause of the dystocia once in every eighty deliveries. This incidence was challenged by one not sensitive to contraction rings. All can remember when endometriosis was very uncommon. Naturally, its frequency would depend on whether or not only severe cases were recorded or whether all grades were included.

In clinical obstetrics, contraction rings have been encountered only at the junction of the lower uterine segment with the body of the uterus. This is true with the rings of obstructed labor and those obstructing labor as well as those obstructing the expulsion of the placenta. The ring may move upward as labor progresses and as the presenting pole is drawn upward. In unobstructed labors, the contour of the fetal ovoid is such as to permit or cause the contraction or retraction of the uterus above the presenting pole, be it the breech or the vertex.

Little can be said as to the etiology without going into the realm of speculation. In my cases, early rupture of the membranes was a decided predisposing cause. In fact, when the membranes have ruptured before or early in labor, and subsequent cervical dilatation has not kept pace with the frequency and severity of the uterine contractions, I have become suspicious of a developing ring, and often this suspicion has been warranted. In a few hospital cases as well as some seen in consultation, it was thought that various attempts at induction of labor were factors. There can be no doubt but that contraction rings of unobstructed labors are functional as many of the more severe cases have had normal subsequent labors.

The contraction ring of obstructed labor (Bandl) is well known. The body of the uterus thickens as the lower uterine segment thins, and it is here that rupture finally occurs.

The contraction ring imprisoning the placenta and described in the textbooks as the dumbbell contraction has not been found in the body of the uterus, but at the junction of the lower and upper uterine segments. It has been thought for some time that, while annoying when encountered, this complication might be definitely protective. If one were to assume that in these cases there had been fundal placentation and, realizing how the uterus naturally puckers or indents at this site, might not, with fundal pressure, inversion occur more often if the ring were not present? This may be speculation, but does not nature do many things which are not appreciated? Then, too, with a little anesthetic and gentle pressure with the wedge shaped fingers, the ring relaxes indicating that its presence was not too malicious.

This paper is concerned mainly with the contraction rings of unobstructed labors and, from the clinical course, these cases may be divided into mild and severe ones. The mild cases would comprise all labors in which other causes of dystocia could be eliminated and which greatly exceeded the normal duration, but which terminated spontaneously or by simple delivery procedures under the lower limit of prolonged labor, i.e., thirty hours. The severe cases would comprise labors which greatly exceeded thirty hours and terminated under surgical anesthesia by more involved delivery procedures. There are varying degrees of toxemia, placenta previa and premature separation of the placenta. If contraction ring dystocia in unobstructed labor is an entity, it appears reasonable to suppose that it also might occur in varying degrees. It is also apparent that the complication may develop at any time from the beginning of labor to very late in the first stage, or even during the second stage. No doubt some few of us, in order to get a little football insurance for the game at 2:30 p. m., have ruptured the membranes at 8:00 a. m. on Saturday in a normal case with 5 cm. cervical dilatation. Then, to our bitter disappointment, we not only had to miss the game, but also divine worship at 11:00 a. m. Sunday morning.

It may be worth while to refresh one's mind on the cardinal symptoms and signs. For this purpose ring dystocia developing early in the first stage of labor is best suited. Many of these patients give a history of the mother having had a long labor. (The mother always claims there were no good doctors in those days.) Also, not a few of these patients are introspective and have carried out to the very last detail good prenatal care. As a class, if there be such, they might be called hypertonic introverts. Labor starts quite normally and then, after a few hours, the complaints of the patient become urgent because of the colicky nature of the pains. Rectal examination satisfies the inexperienced that the complaints are not in accord with the progress of labor and the patient is in for a good sound scolding. Even the pallor and the small beads of perspiration mean little or nothing to him. The experienced physician, after such rectal examination, on the other hand, is conscious of what is taking place and is moved to sympathy. Immediate relief is ordered along with words of understanding and encouragement. May I state here that the popular saying and belief, "the cervix will always dilate when the labor pains are adequate," should be changed to "the cervix will always dilate when the labor pains are adequate but only very slowly in unobstructed labors where a contraction ring is forming or has formed."

After a few hours of rest produced by sedation,

the battle is on again and, as the hours pass, the colicky character of the pains increases, the patient holds her hands over the uterus because it has become sensitive and she wants to protect it from the hands of nurses and doctors. She may now show some signs of fatigue, and the urgency of another period of rest becomes apparent. A vaginal examination may now show the station of the head to be slightly higher than noted earlier in labor. Some increase in cervical dilation has taken place, possible 2 or 3 cm., with soft, somewhat edematous cervical edges. The middle finger of the examining hand is inserted rather deeply between the cervix and the head. The other hand is placed on the body of the uterus and kept there until a strong contraction is felt, when the impact on the examining finger is sensed as very weak. The fetal head is found to be movable or lose in the pelvis. There can now be little question about the diagnosis. With the periods of rest and labor, thirty or more hours have now elapsed. The patient begs for a cesarean section. She knows that any medicine given her will afford only temporary relief and she senses the utter futility of being able to deliver herself. Vaginal or rectal examination now may show the cervix 4 cm. dilated, soft and edematous. The patient is now ready for delivery, and more than likely so per vaginam. (This statement that delivery may be made with 4 cm. dilatation of the cervix was sharply criticized by a survey publication on obstetrics and gynecology. The fact that the cervix was soft and edematous, and what was said about it subsequently, was ignored. Very conservative obstetrics is taught at Baylor University and the comments of this editor were appreciated as being timely and quite in order for the usual obstetric patient. Nevertheless, some knowledge and clinical experience with contraction ring dystocia in unobstructed labors convinces one that with 4 cm. or 5 cm. dilatation of a soft and edematous cervix, draping the presenting pole permits delivery per vagina.)

Fortunately, the ease with which these cases may be delivered is in marked contrast to the difficulties and anxieties suffered by both the patient and doctor during the long hours of labor. This is explained easily when it is realized that in unobstructed ring dystocia only the contraction ring prevents the passage of the child and, therefore, the only requisite to easy delivery is relaxation of the ring. With the condition of the cervix as just described, and the duration of labor well over thirty hours, the patient is prepared for delivery. The outer gate of the birth canal is opened with the episiotomy of choice, and the hand is carried deep into the vagina to iron out or stretch the posterior pelvic fascia and the underlying portions of the levator ani muscles. This is advisable, since the fetal head has not been forced against these structures to condition them for the passage of the child. The edematous cervix is then felt as a drape covering the most dependent portions of the presenting part. It does not require manual dilatation as one thinks of the term, because the cervix generally brushes aside by merely opening and separating the fingers of the operating hand. The latter is then carried upward posteriorly between the lower uterine segment and the fetal head for the purpose of making an accurate diagnosis of position, and also to determine the presence of any loops of cord below the ring. At this time the contraction ring is examined to ascertain what, if any, effect the present degree of anesthesia is having upon its tone. If a loop of cord is not present in the lower uterine segment, a painstaking cephalic application with midplane forceps is made. It may then be desirable, or even necessary, to deepen the anesthesia. Delivery is then effected by careful and steady traction, assisted by gentle pressure on the fundus in the direction of the pelvic inlet. If a loop of cord is present in the lower uterine segment, making it almost impossible for the cord to escape pressure from the forceps' blade, I prefer to lift the head up through the dilating or dilated ring and complete the delivery by version and extraction. Adrenalin chloride will not dilate this type of ring. It was tried many times several years ago and always with the fingers trying gently to find a passage between the ring and the child's body. Ether carried to the point of deep surgical anesthesia will relax it.

Baylor University College of Medicine.

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THE DIAGNOSIS AND TREATMENT OF LESIONS OF THE BRONCHIAL TREE

ARTHUR M. OLSEN, M.D.
ROCHESTER, MINNESOTA

It is my purpose to present an evaluation of the methods employed in the diagnosis and treatment of lesions of the bronchial tree rather than to try to discuss individual diseases. In the last few years a real effort has been made to diagnose pulmonary conditions early in their course in order that thoracic surgical procedures may be carried out successfully. In addition to the obtaining of a good history and a thorough physical examination, there are a number of specialized procedures which often are necessary for the correct diagnosis of pulmonary diseases. These include roentgenographic studies of the thorax, bacteriologic and histologic study of sputum and bronchial secretions, bronchoscopy, bronchography and surgical exploration of the thorax. I should like to point out the indications and limitations of these procedures.

DIAGNOSIS

History and Physical Examination.—Acute pulmonary diseases present symptoms which are unmistakable and which usually lead to a correct

Presented at the 89th Annual Session of the Missouri State Medical Association, Kansas City, March 30-April 2, 1947.

diagnosis; however, symptoms of chronic pulmonary diseases may be minimal or absent or may appear late in the course of the disease. Thus, it is necessary for the physician to have a high index of suspicion when he is dealing with seemingly minor respiratory disturbances. The condition of the patient who complains of frequent colds or "sinus trouble" deserves further investigation. He may have bronchiectasis. The person who has repeated attacks of pneumonia may have a bronchial obstruction. Every instance of pneumonia should be followed to complete resolution by means of roentgenologic examinations of the thorax. As far as I am concerned, there is no such thing as "unresolved pneumonia." When pneumonia fails to resolve, a search should be made for bronchial obstruction or pulmonary suppurative disease.

A brief discussion of some of the more common respiratory symptoms is in order. Cough probably is the most frequent of respiratory symptoms. What may be characterized as a "cigaret cough" may be the forerunner of serious pulmonary disease. Dyspnea also is a common complaint. It is frequently necessary to distinguish between dyspnea of cardiac origin and dyspnea of pulmonary origin. As a rule, orthopnea means heart disease or asthma. People who have tuberculosis, emphysema, abscess of the lung, bronchiectasis and bronchiogenic carcinoma usually can lie flat. When orthopnea develops in a patient who has pulmonary disease, it may mean the beginning of failure of the right side of the heart.

Hemoptysis is always important. Bronchiectasis is the commonest cause of bleeding from the bronchial tree. Hemoptysis occurs less commonly in tuberculosis and valvular heart disease. Among patients in the older age group bronchiogenic carcinoma always must be considered, even though results of roentgenograms may be negative.

Cyanosis is common in acute pulmonary diseases, infrequent in chronic disturbances of lungs. Massive atelectasis caused by a foreign body or mucous plug may cause marked cyanosis and dyspnea. Yet the patient whose main bronchus has been occluded by a growing tumor mass may be perfectly comfortable and of normal color.

One usually thinks of asthma when patients wheeze; yet obstructions in the larynx, trachea or main bronchi may produce a marked wheeze. Chevalier Jackson was responsible for the aphorism "all is not asthma that wheezes."

Pain in the thorax invariably requires careful evaluation. Pain of cardiac or esophageal origin must be excluded. Pain originating in the wall of the chest is encountered rather often. When pain is caused by pulmonary disease it is, most often, pleuritic in character. Pleurisy is a symptom, not a disease.

Although pleurisy may be traumatic in origin, the physician must think always of tuberculosis, abscess of the lung, carcinoma or other pulmonary disease when pleurisy is presented. Pleural pain in the postoperative period almost always signifies pulmonary embolism. When pleurisy or pleural effusion occurs without an obvious etiology, it is usually due to tuberculosis. In cases of bronchiogenic carcinoma, the presence of thoracic pain generally conveys a bad prognosis.

By and large, what the physician can feel and see is likely to be more important than what he can hear with a stethoscope. This is especially true in chronic pulmonary diseases. On examination of the thorax, a lag on the affected side usually indicates bronchial obstruction. Enlargement of the veins of the neck, chest and arms means obstruction to the return circulation of the superior vena cava. Muscular atrophy in the region of the clavicle as a rule is indicative of tuberculosis. Clubbing of the fingers and toes is commonly seen in pulmonary suppuration. When a patient has a chronic productive cough, inspection of the patient's sputum is usually worth while. The sputum of patients with abscess of the lung and bronchiectasis often has a characteristic appearance and odor. Palpation of the chest gives information concerning thoracic movement, and it is sometimes possible to detect differences in the two sides of the chest. It is particularly important to search for enlarged lymph nodes. As a rule, enlargement of supraclavicular lymph nodes is of greater significance than is enlargement of axillary nodes. Percussion of the chest is important in the determination of dulness, resonance or hyperresonance. It is also helpful in the recognition of mediastinal displacement. Results of auscultation of the thorax often are disappointing among patients who have chronic pulmonary disease; however, the physician should search for râles as well as changes in the character of breath sounds. Except in acute pulmonary diseases, the diagnosis rarely is made on the basis of results of the physical examination. The history and physical observations may excite suspicion and lead to additional studies. In any case, the next logical step is roentgenologic examination of the thorax.

Roentgenologic Examination. — The students of physical diagnosis are inclined to deplore a readiness to employ roentgen rays and other "short cuts" to diagnosis. Nevertheless, in the present day diagnosis of thoracic conditions, the roentgen rays are absolutely indispensable. In general examinations carried out at the Mayo Clinic, the making of a roentgenogram of the thorax is routine in all cases. I believe the time will come when a roentgenogram of the thorax will be made for every person once a year.

The trained roentgenologist is of tremendous help in the diagnosis of pulmonary conditions; yet not every community can expect to have an expert roentgenologist available. Hence, the general practitioner and internist must acquire some skill in interpretation of the roentgenogram of the thorax. He must be alert to recognize the tiny lesions of early tuberculosis, the signs of bronchial ob-

struction, such as mediastinal shift, elevation of the diaphragm and atelectasis, the appearance of cavities in the lung and the appearance of pleural effusions. He must learn to recognize abnormal signs.

When the physician sees suspicious shadows in the roentgenogram of the thorax, he is wise to consult colleagues who are trained in diagnostic roentgenology. Lateral and oblique roentgenograms may add greatly to the knowledge of the condition. Roentgenograms made with heavy exposure frequently are indicated. Roentgenoscopic examination is of great help in many cases. Special technics, such as tomography, often are helpful. Finally, the roentgenologist may desire bronchograms to aid in his diagnosis.

Although bronchial tumors at times actually may be visualized in roentgenograms of the thorax, it is more common to see the effects of the bronchial obstruction they produce. Thus, a small tumor which is obstructing the orifice of the bronchus of an upper lobe will produce atelectasis or consolidation of the entire upper lobe. Suppurative disease is very likely to occur in the affected portion of the lung, and formation of abscess may occur.

Thus, the roentgenologist may discover an abscess cavity in the lung. However, it usually is necessary to correlate the information obtained from the roentgenogram with the clinical history, the bronchoscopic observations, the results of bacteriologic studies and the findings of the pathologist. Only then can the abscess be classified as nonspecific, or tuberculous, or as caused by a fungous disease such as coccidioidomycosis or blastomycosis, or secondary to the obstruction produced by a bronchial tumor.

Hence, the roentgenologist is only seeing shadows. His diagnostic accuracy may be great, but often the physician must obtain histologic or bacteriologic proof of the nature of the lesion.

Laboratory Studies.—It goes without saying that routine urinalysis and blood counts are of little help in arrival at the diagnosis of thoracic conditions. The sedimentation rate has some value so far as it indicates how sick the patient is; yet a normal sedimentation rate does not exclude serious disease.

When the patient with thoracic disease can raise sputum, examination of the sputum is of great importance to the diagnosis. Acid-fast stains invariably should be employed. Smears, cultures and special studies for fungous organisms often are indicated. At times, inoculation of guinea pigs or other laboratory animals with material obtained from a patient is required. Recently, technics have been devised for the demonstration of malignant cells in the sputum of patients who have suspected bronchiogenic carcinoma.

Bronchoscopy.—Bronchoscopic examination often is required in the diagnosis of pulmonary lesions. With the bronchoscope, the trachea, the main bronchi, the orifices of the bronchi to the upper lobe, middle lobe and tertiary divisions of the bronchi to the lower lobe can be inspected. Foreign bodies, tumors, bronchial strictures and bronchial ulcerations may be seen in the accessible divisions. Bronchoscopy, however, has its definite limitations. Although 75 per cent of bronchial tumors may be seen with the bronchoscope, tumors of the upper lobes and the periphery of the lung are not visible. A negative result of bronchoscopy does not exclude bronchiogenic carcinoma.

The gross appearance of bronchial lesions often is helpful to the diagnosis, but may be very misleading. Bronchial carcinomas may be represented by polypoid tumor masses, by ulcerating lesions or by infiltrations of the bronchial wall. Benign tumors of the tracheobronchial tree, such as adenomas or cylindromas, usually are smooth, round masses without evidence of ulceration or infiltration. Tuberculous lesions vary from inflamed and ulcerative bronchial lesions to smooth strictures. Benign, nontuberculous bronchostenosis usually affects the tertiary bronchi.

One of the most important reasons for the performance of bronchoscopic examination is that of obtaining material for biopsy from the tracheal or bronchial lesion. Furthermore, during this type of procedure secretions often can be collected for bacteriologic and histologic study. The pathologist who examines the tissue removed at bronchoscopic examination must be experienced in the handling and examination of small bits of tissue. Because the specimen obtained may be necrotic, or because it may not have been taken from the proper site, it is sometimes necessary to repeat bronchoscopy and to obtain more tissue from the lesion.

Bronchoscopic examination is not sufficient for arrival at the diagnosis of abscess of the lung or bronchiectasis. However, it does enable the physician to secure valuable information as to which part of the bronchial tree is affected by suppurative disease. Furthermore, obstructing lesions associated with suppurative disease may be recognized with the bronchoscope.

Bronchography.—The introduction of iodized oil into the bronchial tree is of particular value in the demonstration of lesions in the smaller bronchi or in those portions which cannot be visualized with the bronchoscope. Bronchograms have their chief value in the diagnosis of bronchiectasis. Complete bronchograms are essential to the diagnosis of bronchiectasis, and must be made if lobectomy is to be considered. Bronchography often is employed in the demonstration of obstruction in the bronchi of the upper lobes, middle lobes or distal segments of the bronchi of the lower lobes. It has a limited indication in the diagnosis of abscess of the lung and bronchiogenic cysts.

Surgical Exploration of the Thorax.—It is seen that the diagnosis of lesions of the bronchial tree is dependent on correlation of all available diagnostic aids. At times the history, physical observa-

tions, roentgenograms of the thorax, results of studies of the sputum and of bronchoscopic and bronchographic studies do not make it possible to arrive at a diagnosis. Yet, on the basis of the roentgenogram, it is known that a lesion is present in the lung. If a neoplasm is suspected, the physician should not hesitate to advise exploration of the thorax. The risk of thoracic exploration today is little more than that of abdominal exploration. Thus, the diagnosis is made at the operating table or by the pathologist who examines tissue obtained by the surgeon. It has been learned that surgical exploration of questionable lesions ought not to be delayed. By the time the diagnosis becomes evident on clinical grounds, the delay may be too long.

TREATMENT

I do not intend to discuss the surgical treatment of lesions of the bronchial tree in any detail. Pulmonary resection is the best treatment for bronchiogenic carcinoma, when resection is possible. Roentgen ray therapy for malignant disease of the lung has limited value, and is used only when surgical resection cannot be carried out. Lobectomy is the treatment of choice for unilateral bronchiectasis. Although resection of the ribs and institution of drainage are still valuable methods of treatment in acute simple abscess of the lung, results are much less favorable when the condition is chronic and complicated. In the presence of long-standing pulmonary abscess, lobectomy is being employed with increasing frequency. The preoperative use of penicillin and streptomycin administered both parenterally and in the form of aerosol has been of great assistance in the prevention of complications after major thoracic surgical procedures.

In tuberculous strictures of the bronchi, pulmonary resection has been carried out successfully in a considerable number of cases. Now that streptomycin is available, it is probable that the indications for resection in some types of pulmonary tuberculosis will be extended.

Some types of therapy may be carried out through the bronchoscope. Nontuberculous, benign strictures of the bronchial tree can be dilated with dilating forceps. Such dilatation has been effective in some cases of bronchial asthma. Occasionally, a tuberculous stricture may be dilated in order to maintain an airway. Tumors of the trachea must be treated by fulguration through the bronchoscope. Surgical diathermy also may be used in benign tumors of the major bronchi, and good results have been obtained in a considerable number of cases. However, whenever pulmonary suppuration is associated with bronchial adenoma, pneumonectomy or lobectomy is the treatment of choice.

Pulmonary abscess may be successfully treated by bronchoscopic means in at least 50 per cent of cases. Although the abscess cavity cannot be visualized through the bronchoscope, it is usually possible to identify the bronchus which supplies the affected segment of lung. This bronchus often is stenotic. The bronchus may be dilated and pus aspirated. When the combination of postural drainage and chemotherapy is used, many of these abscesses will heal.

The intratracheal instillation of penicillin and streptomycin has proved to be helpful in the control of bronchorrhea associated with bronchiectasis. The material is injected supraglottically with a laryngeal cannula in much the same way that iodized oil may be instilled. At the clinic penicillin sodium has been used in concentrations of from 10,000 to 20,000 units per cubic centimeter of isotonic solution of sodium chloride, and 0.1 gm. of streptomycin hydrochloride per cubic centimeter of solution. These solutions can be mixed, if desired. About 10 cc. may be instilled once or twice daily after cocainization of the hypopharynx. Many patients are able to undergo such instillation without local anesthesia.

The aerosol method of administration of penicillin and streptomycin has been used for a large number of patients with bronchiectasis. The method has been helpful in the preparation of patients for lobectomy. In the majority of patients who are not candidates for lobectomy, it has reduced greatly the volume of pulmonary secretions.

In the administration of penicillin aerosol a standard glass nebulizer connected with rubber tubing to an oxygen tank equipped with a flowmeter and reducing valve has been used. A Y tube has been inserted into the system to permit nebulization during the inspiratory phase only. From 4 to 6 liters of oxygen per minute is required to produce a satisfactory mist of the solution. Penicillin sodium in concentration of from 10,000 to 25,000 units per cubic centimeter of isotonic solution of sodium chloride has been employed; usually from 200,000 to 300,000 units is given daily in divided doses in the early phases of treatment. When a satisfactory reduction in the amount of sputum has been obtained, the amount of penicillin used daily is reduced. Generally, continued therapy on a modified scale is necessary to maintain the improvement. When pathogenic, gram-negative bacteria are demonstrated in the sputum, streptomycin hydrochloride has been added to the solution. Usually, from 0.5 to 1.0 gm. of streptomycin is mixed with from 200,000 to 400,000 units of penicillin in 20 cc. of isotonic solution of sodium chloride. The results of aerosol therapy and the intratracheal administration of these antibiotic agents have been gratifying.

Streptomycin aerosol has been used in the treatment of tuberculous tracheobronchitis in conjunction with intramuscularly administered streptomycin. Results thus far have been encouraging. As a rule the tuberculous ulcers have healed rapidly. However, this treatment does not prevent the development of bronchial stricture.

Mayo Clinic.

SOME CLINICAL EXPERIENCES IN THE EUROPEAN THEATER OF OPERATIONS

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From the beginning of time war has been attended by the epidemic spread of infectious diseases. Indeed, not infrequently such pestilential visitations have actually influenced or determined the outcome of crucial campaigns. To the student of medical history a greater attrition of manpower from disease than from the trauma of battle is anticipated. Hence, the reversal of this situation becomes noteworthy. The European Theater of Operations experienced a surgical war.

The American Army in the European Theater of Operations was not beset by the appalling climatic, geographic and topographic obstacles encountered by forces in so many other quarters of the globe. Furthermore no serious threat of endemic disease confronted the armed forces in Great Britain and Europe. The natural advantages in transportation and hospitalization contributed materially to the adequacy of medical coverage and, in turn, to the health of the command. Time was afforded to evolve a carefully conceived medical program for the prevention of disease and for the care of the sick and wounded. Importantly, the high command had confidence in the mission of the Medical Department.

The escape of the American forces in this Theater from serious epidemics must not be considered entirely fortuitous or dependent upon favoring natural forces alone. To the Division of Preventive Medicine in the Surgeon General's Office, and more particularly its representatives in the Office of the Chief Surgeon of the European Theater of Operations, due credit should be given for a health record that is unexcelled in the annals of warfare. While the ramifications of this department's responsibilities touch every aspect of an army's life, save its primary function of destruction, passing attention will be paid only to a limited area of the sanitation and immunization program. Typhoid fever and bacillary dysentery, filth diseases, notoriously thrive under conditions of military operations. In an army that exceeded three million troops at its peak there occurred only forty-six instances of typhoid fever in four years. Typhoid vaccination and superior sanitary control must be credited with this astounding record. Out of the availability of effective bacteriostatic agents against bacillary dysentery arose a most unusual dilemma. The sulfonamides were used widely both prophylacticly and therapeuticly without bacteriologic control. Hence the assembled figures of its low incidence can only impress the efficacy of these drugs. Sulfadiazine gained ascendency for this end late in the war. Typhus fever imposed a different problem in the louse vector. Here DDT joined forces with the Cox vaccine to limit the occurrence of this disease (twenty-one instances). Tetanus affords one of the most striking examples of the efficacy of artifically induced immunity. All American soldiers received tetanus toxoid upon induction into the army. In event of laceration, abdominal surgery or battle wound, a booster dose of toxoid was administered. In the German Army only the Luftwaffe and paratroops received protective immunization against tetanus. Among the thousands of wounded Americans there occurred one instance of tetanus in Europe and he died. By contrast hundreds of wounded German soldiers developed tetanus and scores died.

So, perforce, increased and deserved emphasis fell upon preventive medicine during World War II. Its lessons must not be overlooked in the evolution of the medical practice of the future. Mere lip service will not meet the issue. By precept and practice, prevention must spearhead the attack upon human disease and deterioration in every civilized community.

In addition to his duties directed toward the maintenance of the health of the command, the medical officer in every echelon encountered clinical problems, which were met as the situation permitted. The screening at induction centers eliminated many potential patients from the army. Conspicuous were the low incidences of tuberculosis and rheumatic heart disease. Peptic ulcer continued a liability to the end. Army life has no place for the exacting care of these patients. In one of the affiliated general hospitals a program of limited, protected duty was projected for a group of patients with peptic ulcer. The difficulties encountered in discrimination, discipline and medical management of such a preferred segment of a hospital command proved insurmountable. The plan fell of its own weight nor would any other unit join in the thankless effort to retrieve this questionable group. In many scattered medical services medical officers with training in gastroenterology undertook independent studies to correct this apparent defect in Theater policy. Without exception the ultimate answer was the same. The soldier with peptic ulcer rarely escaped a relapse when on active duty and his average period of service abroad was three months. The established history of peptic ulcer should arbitrarily exclude a candidate from the military service. Bronchial asthma and chronic arthritis fall into the same category, although in total warfare individuals with such affections may ultimately find effective limited service.

With all the safeguards surrounding acceptance into military service precocious vascular accidents in young adults could not have been anticipated, but a higher expectancy of such disasters was predictable in the older age groups. A general officer, 56 years old, in a key post, experienced indigestion after a moderately heavy lunch. Believing his discomfort due to gaseous distension he tried to "walk it off." Thereupon he developed severe substernal oppression. When seen by a medical officer, he was cyanotic and his skin was leaky. For a short time auricular fibrillation prevailed. The skin became ashen and the oppression changed to actual pain.

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The general was admitted to a hospital the next morning. All clinical studies were essentially normal and the electrocardiograms repeated several times in the next few days showed no departure from one taken several months previously. The situation was discussed frankly with him and his superiors, but against advice he left the hospital and died in a recurrent attack of excruciating pain thirteen days after the first episode.

The Ardennes Bulge threw tremendous responsibilities upon many officers in high positions. A general officer, 52 years old, whose command was called upon to meet the German onslaught, experienced anginal pain on effort. At times progress over the icy slopes in the forest was agonizingly tedious. Anxiety of mind was added to his bodily infirmity and he was shattered when he reached a hospital. The electrocardiogram indicated recent infarction of the anterior wall of the left ventricle and he was evacuated to the Zone of the Interior.

While both of these officers were at a period of life when coronary thrombosis and myocardial infarction occur in increasing frequency, there can be no reasonable doubt of the precipitating order of their responsibilities. From another standpoint, while war is a young man's game, the judgment and balance of years will always be required in higher echelons. Hence such penalties will be exacted.

A less logical risk is involved in the following instance. A tense, overweight general officer, 53 years old, held a position of critical responsibility in the field. His vascular heritage was insecure in that both parents had succumbed to cerebral accidents. For more than a decade he had met routine examinations in the service by preparatory rest and sedation. Interval blood pressure readings had invariably been elevated. From December 16, 1944, to late in January 1945 the tactical situation was taut and this officer could not relax. Sleep was interrupted and the strain was terrific. He experienced a sense of increasing tension and severe headaches which did not relent with the stabilization of the military situation and the repulse of the Germans. Upon examination the blood pressure registered 210 mm. systolic and 134 mm. diastolic. There were signs of left ventricular strain and overstrain. Furthermore, the ability to concentrate urine was limited to 1.013 and there were a few hyaline casts.

Obviously the experience of this career soldier may be multiplied in all ranks and in all branches of service. In many similar instances ordinary duties and important military missions were discharged by equally handicapped individuals without prejudice either to the cause or to the individual. Nevertheless, the validity of the physical standards of the army is supported by the experience of this hypertensive officer. Indeed a new history of war might well be based upon the mental and physical health of commanding officers.

While spared major epidemics in the European Theater of Operations, the resurgence of the interest in infectious hepatitis was shared with all other theaters. Most dramatic and startling were the instances of acute hepatic necrosis with a fatal outcome in from seven to ten days. Contrary to the accepted rule, atrophic cirrhosis was observed to succeed infectious hepatitis in isolated subjects. The clinical course was more severe and protracted in the older individuals. Apparently the state of nutrition and the alcoholic habit of the affected soldier had a material influence upon the course. In general, the intricate tests of hepatic function were not susceptible of prognostic translation; but patients with hepatitis were not given unlimited physical liberty with icterus indices over 15 units and quantitative van den Bergh reactions over 2.5 mg. bilirubin per 100 cc. of blood. Rest and diet proved the most important therapeutic indications. In the last analysis the patient's ability and willingness to extend his physical range proved the safest guide. The preferred diet included from 4 to 5 grams of carbohydrate and 2 grams of protein (not to exceed a total of 200 grams) per kilo of body weight per day and limitation of fats to a total of 60 grams per day. The sulfhydryl compounds (S—containing amino acids) showed no added advantage over high protein diets. Early crises may be bridged by infusions of glucose or transfusions of plasma or whole blood. Gamma globulin may have a preventive role but it has no therapeutic value. Supplements of vitamin B_2 complex have at least a theoretic place in this condition, but vitamin K should be reserved for frank hypoprothrombinemia.

Viral pneumonia which replaced bacterial pneumonia in order of frequency, did not become a serious problem. Its diagnosis was early based upon negative evidence that excluded a pneumococcal etiology. Eventually the harassing cough, glairy sputum, absence of herpes, mildness of constitutional symptoms and paucity of thoracic signs, supported by the lack of common pathogens in the sputum, low leukocyte count, monocytosis, cold agglutinins in the blood and roentgen ray findings gave a sufficiently definitive pattern to justify a ready diagnosis. The sulfonamides and antibiotics had no beneficial action on viral pneumonia. Their use is condoned under circumstances of violent constitutional reaction that might early suggest a coccal pneumonia. As soon as the diagnosis is fixed, these drugs should be discontinued.

While the course of viral pneumonia is usually benign, its occasional complications cover a wide range. Cough fracture of ribs is the most common and it should be suspected whenever a pleuritic type of pain, unattended by a friction rub, is encountered in this condition. Silent pleural effusions are not uncommon. Empyema is almost unknown. Spontaneous pneumothorax and interstitial emphysema may occur. Bronchiectasis is less frequent than anticipated. Abscess of the lung and pulmonary infarction have been described. Pericardial effusion may complicate the picture rarely. Myocardial involvement may manifest itself in faults of conduction and arrhythmias. Perhaps the most striking complications relate to the central nervous system. The inception of viral pneumonia may be with

symptoms of meningismus. Toxic psychoses, ranging from depression to mania, are encountered. Encephalitis of a mild order is met occasionally.

While viral pneumonia supplanted pneumococcal pneumonia in most areas, added interest in the older adversary arose from its relative benignity and ease of control. Of course, the age group of an army answers these ends in some measure; but early diagnosis and effective therapy were potent agencies in the general advance. Sulfadiazine was available from the early days of the European Theater. Standard dosage was employed with satisfactory results. Antipneumococcus sera were reserved for the following situations: (a) overwhelming toxemia and prostration, (b) failure of sulfadiazine in forty-eight hours, and (c) persistently positive blood culture.

Two further indications for the conjoint sulfonamide and serum therapy of pneumococcus pneumonia in civilian practice, namely, advanced years and pregnancy, should be added. When penicillin became available, it replaced antipneumococcus serum under the same indications. With extending experience penicillin became the therapeutic agent of choice in pneumococcal pneumonia and sulfadiazine in turn took a subsidiary place. Antipneumococcus serum has been relegated to the role of an adjunct of limited value in pneumococcic meningitis. The recommended dose of penicillin is from 25,000 to 50,000 units intramuscularly every two hours, day and night, until the temperature falls to normal. If this response has not been prompt, it may be wise to continue the full schedule of penicillin for two or three added days. Then the total dosage may be decreased by giving two or three doses of 25,000 to 50,000 units daily for two or three days longer.

Meningococcus infections constituted a serious charge in morbidity and mortality in World War I. Furthermore, the virulence of this infection in Europe and Great Britain has been notoriously high. Fortunately, sulfadiazine proved very efficacious not only in its treatment but also in prophylaxis. A routine of chemo-prophylaxis consisted of 1 gram sulfadiazine three times a day for one day and 1 gram twice a day for two days. Although this formula was applied only to small units in which clinical meningococcal infections occurred, it was very successful. Under the existing conditions medical officers in the European Theater were keenly alert to the problems presented. For example, a medical officer, convalescent from viral pneumonia, had experienced a sharp chill with rise in temperature. In shaking hands with him two petechiae were observed on the thenar eminence and wrist. The only other physical sign was splenomegaly. Evidences of meningeal irritation were missing. The blood culture disclosed meningococci, but the spinal fluid was sterile. In this patient the eruption remained very sparse. In others it has been so extensive as to suggest purpura.

The fulminant onset of clinical symptoms is exemplified by the following patients. A nurse had suffered from headache and sore throat for twenty-four hours. Careful survey showed no meningeal irritation. The attending medical officer thereupon ordered acetylsalicylic acid. Twenty minutes later another medical officer was called to see the patient who had suddenly lost consciousness. The temperature was 103.4 F. The neck was rigid and the head retracted. Heroic therapy saved her life; and when seen in consultation three days later, she had only a residual weakness of the left lateral rectus.

Less fortunate was the medical officer who had complained of slight soreness in the neck for a week. On awakening from a nap he experienced a severe headache which was not relieved by 20 grains of acetylsalicylic acid and 1 grain of codeine. When he reached the hospital ward one half hour later, he was unconscious. The next morning, in spite of full doses of sulfadiazine, he was moribund. The breathing was Biot in type. The neck was stiff. Scattered macules and petechiae were noted over the trunk. The spinal fluid contained 6,000 leukocytes per cubic millimeter. He died without response to therapy.

The latter two patients represent the fulminant cerebral form of meningococcus infection. Their management differed only in the earlier therapeutic attack in the nurse. It is possible that the medical officer actually had suffered from meningococcemia for a week before the terminal precipitous decline. The Waterhouse-Friederichsen syndrome is another explosive expression of meningococcus infection. Although accumulating evidence establishes the fact that this startling picture of peripheral collapse may occur in the absence of suprarenal hemorrhage and, conversely, the patient with extensive hemorrhage escaped the same, experience dictates the propriety of administering adrenal cortical extracts and excesses of sodium as well as sulfadiazine and penicillin to these patients.

The diagnosis of frank meningococcus meningitis and certain of the fulminant expressions of meningococcus infections offers little difficulty as a rule. There are many variants of subacute and chronic meningococcemia to try the diagnostic acumen. An infantryman from a training area was admitted to the hospital complaining of severe right sided abdominal pain and vomiting of three days' duration. The right rectus was spastic. The temperature was 102 F. The leukocytes numbered 26,000, of which 85 per cent were neutrophils. In preparing the abdomen for laparotomy two areas of ecchymosis, 1.5 cm. in diameter, were observed. The soldier was returned to the ward under infectious precautions. Blood culture disclosed meningococci. Radicular symptoms occasionally dominate the picture of meningococcus infection.

A further example of meningococcemia is cited in the soldier who reported sick because of aching pains in the back and joints. For three months there had been recurrent bouts of arthralgia with fever. Upon study there was residual stiffness in the left knee and elbow. Over the peroneal aspect of the

legs there were several purplish areas which, according to the patient, had been elevated and sensitive the previous week. The laboratory examination disclosed no significant departures from normal except moderate leukocytosis and increase sedimentation rate. Blood cultures were sterile. A minor episode of fever with an attendant macular eruption led to renewed efforts to fix the etiology. Suddenly without warning the patient lapsed into unconsicousness and died within twelve hours. At necropsy the diagnosis of a meningococcus infection with fulminant cerebral involvement was made.

The mortality from meningococcus infections in the American Army was 38 per cent in World War I. By dint of close attention to the diagnosis and prompt treatment of these patients, a commendable level of 2.8 per cent mortality was reached in the European Theater in 1945. Diagnostic awareness rested in the hands of every medical officer confronted with a patient suffering from prostration and fever disproportional to his local signs, headache, vomiting, unusual muscular soreness or tonus and suggestive stiffness of the neck. High leukocytic reactions increased this suspicion. Rarely is a meningococcal infection unattended by a neutrophilic leukocytosis. Isolated instances of leukopenia (four to 5,000) were encountered. If circumstances permitted, a blood culture and spinal puncture were made. If distance or conditions of transportation to a hospital involved a delay of more than an hour in the Zone of Communications (Army directives to similar intent), sulfadiazine was administered upon suspicion or diagnosis at once. Depots of sodium sulfadiazine were set up at points of convenience to implement this end.

The plan of therapy was as follows: 5 grams of sodium sulfadiazine (in 100 cc. of distilled water or 1,000 cc. of normal saline solution) intravenously immediately. If the patient were gravely ill or unconscious, this might be repeated twice in twenty-four hours (a total of 15 grams). If the conditions warranted, after the initial intravenous dose of sodium sulfadiazine, 2 grams of sulfadiazine were given orally every four hours day and night until the temperature had been normal for from five to seven days. Blood levels of from 12 to 15 mg. per 100 cc. were sought. The adverse renal effects of sulfadiazine were averted by alkalinization (2 grams sodium bicarbonate every four hours) and adequate fluids (to insure an output of 1,500 cc. a day). Penicillin may have an ancillary place in the treatment of meningococcus infections. Although it passes the normal ependyma in subtherapeutic levels, in the presence of inflammation of the meninges adequate concentrations to effect bacteriostasis may be attained in the cerebrospinal fluid. Intrathecal penicillin may cause pleocytosis, hemorrhage and serious symptoms. Hence its dosage by this route should not exceed 10,000 units. As a rule 5,000 units were given intrathecally and subsequent doses of 3,000 units twice a day sufficed. Physiologically speaking, intramuscular penicillin should meet all of the indications, since the meninges are infected by way of the blood stream. Intrathecal injections promise little by way of sterilizing the cerebrospinal fluid and less in arriving at the source. Antimeningococcus serum was outmoded by the newer and more effective agents and at the present time of these, sulfadiazine (with or without penicillin) is preferred.

Influenza took a toll of 24,575 lives of American soldiers in World War I. An epidemic of virus A influenza confronted the Army in Great Britain in November 1943. Its explosive appearance, rapid spread and attendant alarming prostration and asthenia were most reminiscent of 1918-1919. Fortunately, it was an interpandemic epidemic, without complications. No deaths resulted from it. From a civilian aspect, the experience was important since a plan of action in event of a wave of complicated influenza was evolved therefrom. The laboratory methods for the isolation of the virus and the neutralization studies of antibodies require from eight to ten days. A vaccine has been prepared that has a 75 per cent promise of protection beginning a week after a single injection. If confronted with complicated influenza, a program of immediate immunization was projected. All soldiers who suffered from influenza were to receive sulfonamide or penicillin at once to forestall the anticipated secondary bacterial overlays that account for the overwhelming threat of this disease. Certainly such a plan is susceptible of translation to civilian practice.

In retrospect the clinical experiences in the European Theater reflect the place of the physician in war. If man insists upon recourse to violence to settle international differences, a medical man can best serve humanity by eliminating or limiting disease, by alleviating suffering and by rehabilitating the sick and injured. From an extended experience in war medicine the conviction grows that the physician among professional men is most favored. He may practice his art and in doing so contribute immeasurably to the welfare of his fellow-man and to his country's cause.

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NUTRITIONAL DEFICIENCIES AS A CAUSE OF DISEASE

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Medical history has recorded five diseases which have been recognized as nutritional deficiency diseases.

Table 1. *Historically Important Human Nutritional Diseases*

Disease	*Nutrient*
Xerophthalmia	Vitamin A (A_1 and A_2) and Carotenes
Rickets	Vitamin D (D_2 and D_3) and Provitamins D
Beriberi	Thiamine
Pellagra	Nicotinic acid (Niacin) and Nicotinic acid amide (Nicotinamide)
Scurvy	Ascorbic acid

The pure chemical compounds which prevent and cure these conditions have been identified and are

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available in quantity. Common foodstuffs that are good sources of each of these nutrients are known and information regarding their value in the diet is a part of general knowledge. In the light of these facts, it is pertinent to inquire concerning the present status of nutritional science. Have the main problems been solved or are there still unknowns in nutrition? What is a reasonable attitude to take today toward food as a factor in the maintenance of health? Consideration of these questions will be limited to their broader aspects only.

Severe xerophthalmia, rickets, beriberi and scurvy are of rare occurrence in this country; and, the incidence of pellagra has decreased markedly since the enrichment of cereals has become general. The effect of suboptimal intakes of the vitamins is still uncertain. It seems wholly logical in a population as large as that of the United States and with such a diversity of food habits and of incomes that many individuals might consume moderately inadequate quantities of one or more of these nutrients with a resulting occurrence of borderline deficiency states. Real progress is being made in the development of laboratory procedures designed to measure nutritional status. These show significant differences in hemoglobin, in plasma ascorbic acid, in the excretion of thiamine in fasting urines and in retention of riboflavin after test doses; but there is, unfortunately, no general agreement on the interpretation of the data. This is a field of study which requires a great deal of controlled experimentation and observation. To be satisfied with a mediocre nutritional status merely because one gets along fairly well has no more merit than to be satisfied with a mediocre gasoline merely because an automobile will run on low grade gas. The advantage of superior fuels, whether food or gasoline, becomes evident if one considers the overall cost of maintenance and the type of performance when the going is rough or hazardous.

It is easy to get into a rut on these matters. Nitrogen balance, the equilibrium between intake of protein and the excretion of nitrogenous products of protein metabolism in the adult, has been studied for nearly a century. Yet only now is it recognized that a surprising number of bed patients show negative nitrogen balance, which means loss of tissue protein. This may be true regardless of the occurrence of hemorrhage, of serous exudates or of albuminuria but, of course, is greater in the presence of these conditions. In many instances it is exceedingly difficult to maintain nitrogen balance except with food mixtures rich in protein and in calories. In the case of the very sick, it may be impossible to provide sufficient nourishment in the form of common foodstuffs. In this event, calorie-rich and protein-rich supplements in the form of suspensions of powdered milk and egg in flavored fluid milk may be extremely useful as supplementary feedings. It would be presumptious to say that the significance of this catabolic phase of protein metabolism is understood but it is difficult to see how it can be an asset to nutritional convalescence, particularly postoperative convalescence. There is need of study of this phenomenon. One would, indeed, be very neglectful if recovery from illness is prolonged merely because no real effort is made to prevent or to minimize negative nitrogen balance by the relatively simple procedure of increasing a patient's intake of protein and of calories.

One wonders if there is not an inclination to accept the status quo as the optimal situation in other respects also. It has been said that one young man out of seven was physically disqualified for military service in World War II for reasons which directly or indirectly may be ascribed to faulty nutrition. It would indeed be scandalous if this were true in this day and age. There is food for thought in the fact that mortality among infants at birth and during the first 30 days postpartum has decreased less than 2 per cent in the last forty-five years, whereas, total infant mortality has decreased 85 per cent. A recent report of a detailed study in Boston showed that in 216 cases all stillborn infants, all infants who died within a few days of birth (except one), most infants who had marked congenital defects, all premature and all functionally immature infants were born to mothers whose diets during prenancy were very inadequate. In another study of lactation in 900 cases, it was found that 15 per cent of mothers attempting to nurse their babies had an inadequate supply of milk on the fifth postpartum day. The composition of colostrum is very different from that of mature milk which is not produced until from twenty to thirty days postpartum. It seems significant that infant mortality after the first month has been greatly reduced in spite of the decline in breast feeding whereas the rate for the first month of life has been reduced only slightly. The direct influence of the diet on lactation in animals has been demonstrated definitely although the identity of all of the nutrients which specifically affect production of milk is unknown. Is it not possible that there is a relation between physical unfitness in the adult, physical unfitness in the infant and faulty nutrition prior and subsequent to parturition?

There is evidence of an effect of nutrition on the opposite extreme of life also. The prolonged ingestion of a low thiamine diet produces effects which resemble aging in man. There is, of course, abundant evidence in animal experimentation for a beneficial effect of adequate nutrients upon the duration of the so-called useful life span. In this connection one must differentiate clearly between the eating of a bountiful supply of nutrients and the overeating of energy foods. Health records testify to the potential danger of the result of overeating, i.e., the state of being overweight. The point which I wish to emphasize is this: Even though climate, natural resources and man's industry have provided people in this country with a most generous supply of good food, one cannot truthfully say that everyone eats well. The attainment of that

goal is doubtless impossible but to strive towards it is an obligation.

Nutritional deficiencies in moderate form, at least, will occur as long as knowledge of individual nutrients and of their interrelationships is incomplete. There is a vast difference between the nutritive values of raw or fresh foods and of processed foods, to say nothing of the differences in fresh plant foods grown or harvested in diverse ways. The effect of necessary processing needs always to be kept in mind.

Table 2. *Destruction of Nutrients During Cooking and Processing of Foods*

Thiamine	Beef, fresh—120 mcg. per cent. Beef, roast, cd.—20 mcg. per cent.
Ascorbic acid	Peas, fresh (edible portion)—26 mg. per cent Peas, cd.—8 mg. per cent Orange, fresh (edible portion)—49 mg. per cent Orange juice, cd.—42 mg. per cent
Lysine	Decreased availability in heat-processed cereals

The loss of thiamine in the cooking of meat and the loss of ascorbic acid in the cooking of peas is marked. Fortunately, loss of ascorbic acid in the cooking or canning of tomatoes and of citrus fruit juices is small. Impairment of nutritive value by processing is not limited to vitamins. The use of dry heat in the manufacture of certain breakfast cereals results in a marked decrease in the availability of the essential amino acid, lysine. The question of enrichment of flour needs attention. As is known, the wartime enrichment law is no longer operative as a federal statute. Many states have enacted similar laws and there is hope that the millers of flour will continue the enrichment program although not required to do so. This is a matter which should not be left to chance or to the whims of the uninterested.

There is little justification in this country for deficiencies in the historically important vitamins. What of the newer nutrients? The momentum of the researches of twenty years ago on the nature of the vitamins concerned with beriberi and scurvy has resulted in the recognition of numerous new dietary factors, ten of which are available as known chemical compounds.

Table 3. *Nutrients Essential or Effective in One or More Species*

Riboflavin	Pyridoxine
Pteroylglutamic acid (a folic acid)	Alpha-tocopherol
Choline	Pantothenic acid
Biotin	Inositol
Vitamin K	Para-aminobenzoic acid

Unidentified Nutrients
Lactation factors
Strepogenin
Many others

It is worth remembering that these substances were demonstrated to be essential nutrients in animals as the result of the use of more and more highly purified experimental diets and that in no instance was the nutrient investigated as the result of a knowledge of a previously recognized nutritional disease. Twenty years ago there was searching for the cause of known and prevalent human deficiency states. Today, there are more pure and identified nutrients than there are specific nutritional diseases, that is, diseases associated with these nutrients. Does this mean that most of the new factors are dispensable in human dietaries, although indispensable in the dietaries of one or more other species, or does it mean that the practical application of the newer knowledge of nutrition has not kept pace with laboratory studies? The record speaks for itself. Riboflavin deficiency in animals was demonstrated, the compound was identified, and synthetic material was available in quantity before it was known that lesions at the angles of the mouth and certain abnormalities of the tongue, eye and skin in man were preventible evidences of ariboflavinosis. The experimental work on vitamin K was far advanced as a result of studies on chicks before it was realized that this substance was effective in certain types of hypoprothrombinemia in the human. Particularly impressive is the history of the molecule called pteroylglutamic acid, one of the folic acids. This recent addition to the list is a complex containing pterin, a natural pigment hitherto known only as one of the coloring materials of butterfly wings, p-aminobenzoic acid, and one or more molecules of the amino acid, glutamic acid. Interestingly enough, a large share of the experimental work which culminated in the identification of this folic acid was conducted on bacteria, although it now appears that the so-called vitamin M required by monkeys and the anti-anemic factor in chicks are also folic acids. At any rate, here is a nutrient, available largely as a result of studies on the nutritional requirements of microorganisms, which has a profoundly beneficial action in certain macrocytic anemias, particularly in sprue. It is not the antipernicious anemia factor although it is partially effective in this disease. Evidence suggests that the ultimate elucidation of the present confusing status of the extrinsic and intrinsic factors of pernicious anemia will find one of the pteroylglutamic acids involved in some stage of the system which controls the normal life cycle of the red cell. It cannot be proved as yet that the primary cause of pernicious anemia is a nutritional deficiency. It is pertinent that remissions in this and other macrocytic anemias are the result of the administration of one or more substances that properly may be considered dietary essentials.

In these days the essential amino acids are taking on new importance in nutrition.

Table 4. *Essential Amino-Acids*

Lysine	Threonine
Tryptophane	Leucine
Phenylalanine	Isoleucine
Methionine	Valine

Cystine—partial sparer of methionine.
Tyrosine—partial sparer of phenylalanine.
Histidine—essential except in human adult.
Arginine—partly indispensable.
Glycine—partly indispensable.

An intriguing example of interrelationship between nutrients is the recently demonstrated effect of the essential amino acid, tryptophane, upon the quantitative requirement of nicotinic acid. It had

been observed in earlier studies that the rat, for instance, thrived without the antipellagric vitamin in its dietary and it has been assumed either that nicotinic acid is synthesized in this species or that an adequate supply is obtained from intestinal bacteria. Similarly, swine have been shown to require nicotinic acid if the dietary protein is low but that none or little is required on high protein diets.

Table 5. *Interrelation of Nutrients: Nicotinic Acid—Tryptophane*

Nicotinic acid deficiency prevented by nicotinic acid or by tryptophane.
Proteins of corn are low in tryptophane.
Diets rich in corn may be low in both nicotinic acid and tryptophane.
Diets rich in corn favor pellagra.

A start on the clarification of this problem was made by Elvehjem and his coworkers at Wisconsin who demonstrated that rats do require nicotinic acid if corn grits constitute a considerable portion of the diet. This was followed by the amazing observation that the signs of the lack of this vitamin could be removed by the administration either of nicotinic acid or of tryptophane. Subsequent work suggests that the influence of corn on the appearance of pellagra may be due to the fact that this foodstuff is not only low in nicotinic acid but also to the fact that corn protein is low in tryptophane. Diets rich in corn, therefore, predispose to pellagra unless other constituents of the food mixture provide either nicotinic acid or tryptophane. The greater incidence of pellagra in populations dependent upon corn as a major component of the diet, a relation which has been repeatedly noted but never satisfactorily explained, appears to be due to this combination of deficiencies. It is not yet known what the mechanism is which permits tryptophane to spare or substitute for nicotinic acid. This amino acid has no chemical resemblance to the vitamin. Presumably studies now in progress will determine whether tryptophane is used as a precursor of nicotinic acid, or as a substitute for the vitamin in intracellular enzymatic systems, or as a stimulant for its synthesis by intestinal bacteria. This is a fascinating problem insofar as nicotinic acid and tryptophane deficiencies in man and in animals are concerned but I would place the emphasis on this vitamin-amino acid relationship as an illustration of a new phase in nutritional science, a phase in which unexpected and highly important discoveries are being made as a result of the intensive investigation of the mode of action of individual nutrients in cellular metabolism.

How does a vitamin function in preventing abnormality? At least one function has been clearly established, i.e., its occurrence as a normal and essential component of an enzymatic system concerned with intracellular metabolism. One illustration involving thiamine may be cited. Pyruvic acid is a normal intermediate product in the oxidative metabolism of carbohydrate in the body. The further degradation of pyruvate is catalyzed by an enzyme called carboxylase. This is a conjugated protein composed of a specific protein and a non-protein moiety which is named coenzyme. In this particular instance the coenzyme is called co-carboxylase. Co-carboxylase is thiamine plus 2 molecules of phosphoric acid or diphosphothiamine.

Table 6. *Role of Thiamine in Metabolism*

Cocarboxylase (a coenzyme) = thiamine + $2H_3PO_4$
Carboxylase (an enzyme) = Cocarboxylase + Mg + Specific Protein
Carboxylase accelerates liberation of CO_2 from pyruvate (a normal metabolite).
Pyruvate accumulates in thiamine deficiency.

In thiamine deficiency, there is insufficient co-carboxylase and therefore insufficient carboxylase. Pyruvic acid degradation is retarded and this metabolite accumulates in body fluids. As far as is known at the present time all of the primary effects of thiamine deficiency are due to the inability of the tissues to metabolize pyruvic acid. The accumulation of pyruvate and the overloading of other metabolic systems which supply energy for life result in the characteristic evidences of thiamine deficiency. Riboflavin, niacin and pyridoxine also occur in coenzyme form associated with catalysis of other reactions in intermediary metabolism and it is a fair assumption that most, if not all, of the vitamins will ultimately be shown to function in this manner.

Anti-vitamin is a new term in nutritional science. It has been seen that thiamine occurs as an integral part of an important enzyme. Now, certain chemicals may substitute for thiamine in the structure of the enzyme because of a similarity to the thiamine architecture.

Table 7. *Anti-Vitamins*

Sulphonamide	vs.	p-Aminobenzoic acid
Avidin	vs.	Biotin
Pyrithiamine	vs.	Thiamine
3-Acetylpyridine	vs.	Nicotinic acid
Glucoascorbic acids	vs.	Ascorbic acid
Dicoumarol	vs.	Vitamin K

Possible basis: Competition for place in structure of enzymes.

The resulting product is biologically inactive and is damaging because of the resulting loss of effectiveness of the specific protein portion of the molecule. Signs of thiamine deficiency appear following the administration of pyrithiamine, an analogue of thiamine. This competition between vitamins and non-vitamins is more than an interesting laboratory finding. Sulphonamide is an anti-vitamin for p-aminobenzoic acid which it resembles structurally. This effect, indeed, may be responsible for the action of the sulpha drug on bacteria which require p-aminobenzoic acid as a nutrient. Obviously the destruction of invading bacteria is more important than a temporary interference with vitamins in tissue cells but it should be kept in mind that bactericidal chemicals which act by interference with bacterial metabolism may also affect animal metabolism. This is not to be construed as an argument against the use of bactericidal drugs because bacterial infections may represent a far greater medical hazard than a vitamin deficiency. There are similarities as well as dissimilarities between bacterial and animal metabolic

processes. The ideal bactericidal chemical would be one which is potent as an antivitamin in bacterial nutrition and impotent as an anti-vitamin in animal nutrition.

Another example of interrelationship between nutrients is the very important connection between choline and methionine, a pair which controls in a striking fashion the deposition of fat in the liver.

Table 8. *Interrelation of Nutrients: Choline-Methionine*

Choline is an essential component of lecithin.
Lecithin is necessary for tissue structure and for transport of fatty acids.
Methionine is essential for protein synthesis and may serve as a precursor of choline.
Methionine supplies "utilizable or labile methyl" for choline synthesis.

The accumulation in the liver of excess fatty acids in the form of glyceryl and cholesteryl esters is unique because of its magnitude and because of the number of factors concerned with its occurrence. If one considers the fatty liver from the physical viewpoint only, it is easily understandable that the investigator may go all out in his acceptance of hepatic infiltration of fat as a primary cause of subsequent degeneration. Normal functioning seems impossible in the presence of the relatively huge masses of fatty material which, on microscopic examination, appear to fill the cells completely. Livers that ordinarily contain from 4 to 6 per cent of total lipid may yield 50 per cent or more under pathologic and experimental conditions, quantities which approach the fat content of adipose tissue. The nucleus of the cell may be pushed to one side and it is not unreasonable to believe that, as more and more fat collects in the cytoplasm, loss of function and death of the cell occur. This would be followed by phagocytosis and the appearance of scar tissue. Even if the deposition of fat is only moderate, it is difficult not to take for granted a serious impairment of hepatic function. It is customary to think of cellular metabolism in terms of chemical reactions occurring in a regulated fashion, a conception which presupposes a well-defined cellular architecture. Such an orderliness would seem to be indispensable in an organ responsible, in whole or in part, for such an impressive array of activities as the following: the production of prothrombin, fibrinogen, other plasma proteins, and the components of the bile; the manufacture and storage of glycogen, the postabsorptive source of blood sugar; the synthesis of fatty acids from carbohydrate and protein; the desaturation of fatty acids and their transformation into phospholipids; the oxidation of fatty acids into acetoactic acid, one of the principal sources of energy for other tissues; the deaminization of amino acids and the formation of urea; the metabolism of purines, and, the detoxification of numerous injurious substances. How can these and other unnamed activities proceed in a normal manner if liver cells become gorged with fat? Undoubtedly, the marked regenerative power of hepatic tissue and the very high functional reserve of the liver account for the fact that metabolism is not immediately upset by the development of the fatty liver. Furthermore, fluctuations in the levels of fat and of glycogen are normal and occur after each partaking of food. Even though the liver is designed to carry on its many functions in the presence of constantly varying levels of fat and carbohydrate, the fatty liver is characterized by amounts of fat which are far in excess of normal variations. What is the effect of prolonged structural dislocation of hepatic cells due to the deposition of fat, especially if compensatory circulation fails to offset a protracted, partial obstruction?

Experimental studies designed to answer this question have centered on the causation of the fatty liver and on the final result of this condition, if chronic. These investigations have been accelerated markedly since the first observation, twenty years ago, that choline is highly effective as a lipotropic compound, i.e., a compound which prevents the formation of a fatty liver. This finding developed from the original studies of the efficacy of the newly-recognized insulin in the maintenance of depancreatized dogs. It has been confirmed repeatedly that fatty infiltration and hepatic degeneration occur in dogs following pancreatectomy and administration of insulin unless pancreas, or its equivalent, is included in the food mixture. At least one of the effective components of pancreas is choline.

The importance of choline as a dietary essential and as a metabolite is evident from its occurrence as a component of lecithin, a phospholipid which is an indispensable part of tissue structure and which is an active intermediate in the transport and metabolism of fatty acids. The severe hemorrhagic degeneration of the kidneys, as well as deposition of liver fat, which result in young rats fed low-choline diets, demonstrates the indispensability of this nutrient in the animal organism.

There are three sources of hepatic lipids, viz., dietary fat, mobilized depot fat, and fat synthesized in the liver from carbohydrate and protein. Hepatic cells may lose fatty acids in two general ways, viz., by the formation of phospholipids and subsequent transport of these to other tissues, particularly storage depots, where they are reconverted to fat, and by the desaturation and breakdown of long chain fatty acids to acetoacetic acid, which is also carried by the blood to other tissues where it is not stored but used as a source of needed energy. The amount of fat in the liver at any one time depends upon the balance existing between these opposing factors of supply and outgo. Equilibrium is influenced by many dietary and metabolic agents, both normal and abnormal. It would be presumptious to state that the controlling mechanisms are clearly understood but it may be safely said that one very important factor is the chemical transformation of fatty acids from the triglyceride to the phospholipid form, apparently a prerequisite for movement out of the liver. For this change, components of phospholipids are necessary and all ap-

pear to be readily available except choline, the nitrogenous constituent of lecithin.

Deposition of hepatic fat is not necessarily the end result of a dietary lack of choline for lecithin formation. Choline, a methylated compound, can be synthesized in the body if sources of methyl are provided. From a practical standpoint, the essential, sulfur-containing amino acid, methionine, is a valuable dietary precursor of choline because it possesses a labile methyl group which is available for the synthesis of choline. This constituent of protein has a dual role. It is indispensable for growth and maintenance and it can replace completely dietary choline. For this reason, the character and quantity of dietary protein may profoundly affect the concentration of fat in the liver if the supply of choline from foodstuffs is inadequate. This noteworthy property of methionine has been made more striking by the demonstration that it has marked protective action against the hepatic damage caused by arsenicals, such as mapharsen, and by other toxic agents, such as chloroform. The second sulfur amino acid, cystine, is also protective, but less so than methionine. This is to be expected because methionine can replace cystine whereas the reverse is not the case. It appears that the requirement of sulfur amino acids by liver tissue is unusually high and that methionine has protective action against damage resulting from either protein or choline depletion.

The answer to the problem of cirrhosis has not been found, but research of the last decade has added tremendously to knowledge of the nutrient requirements of the liver. Certain conclusions are evident, conclusions which were not possible ten years ago. The liver has a high requirement of choline and of sulfur-containing amino acids, and possibly of inositol also. In addition it has a high requirement of other amino acids, a requirement which has been overshadowed by its more spectacular need of the one amino acid, methionine. Whether a single or several additional amino acids are of particular importance in the maintenance of hepatic cells and hepatic function remains to be determined. The liver is truly a remarkable organ but its capacity for adjustment to unusual situations is limited. Diets low in good protein and in essential nutrients impose unnecessary hazards in the performance of its functions.

This has been a very brief summary of the present status of nutritional science. There is nothing in the present picture which supports a lessening of interest in the relation of food to health. On the contrary, there is every reason to be on the alert for manifestations of clinical disease which have a basis in an altered metabolism and an altered requirement of nutrients. Particularly is it necessary to think in terms of multiple deficiencies which are the result of impaired digestion and absorption of food, of chronic diarrhea, of alcoholism, of neuroses and of infection.

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SOME NUTRITIONAL PITFALLS IN GENERAL HOSPITALS

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The state of nutrition and the factors which operate favorably in its maintenance and those which predispose to nutritive failure are fundamental problems which are being grappled with as never before. The problem is world-wide and despite the prosperity of this country numerous surveys of various population groups show that malnutrition is widespread. Cognizance of this fact is important for full appreciation of the hazards to which hospitalized patients are exposed. Indigent patients admitted to general hospitals present all phases of malnutrition, the degree of which depends upon the length of time they have failed to eat diets adequate in all nutritive respects. Well-to-do patients not infrequently give histories of having partaken of bizarre inadequate diets over long periods. In the cases of other patients malnutrition is predisposed to by organic disease or infection or, as too often seen, by inadequate therapeutic diets. Pregnancy and lactation increase nutritional demands and must receive appropriate consideration if malnutrition is to be avoided.

It can be assumed that a goodly proportion of patients from all walks of life when admitted to a hospital are subjects of various degrees of malnutrition. Also, as Spies[1] pointed out, trivial illnesses may precipitate nutritive failure in subjects who have been in negative nutritive balance for long periods and that the same result may ensue in the patient who, though well nourished on admission, is subjected to a prolonged or to a serious illness. On the other hand, the range of the powers of adaptation possessed by human beings doubtless accounts for the absence of objective signs of deficiencies from which it is difficult to see how they would entirely escape.

Nutritive insufficiency may be directly attributable to inadequate intake of the respective nutrients. Whether this is due to anorexia or to lack of foods in appropriate states matters little. The result is the same. Impaired absorption has the same effect, or inadequate synthesis such as may affect the protein and vitamin K availability in cases of extensive disturbance of the parenchyma of the liver. There may be a pathologic breakdown or utilization of nutrients as occur in febrile states, thyrotoxicosis, and as the result of injuries, and, as in the case of protein, excessive losses through excretion in the urine, in nephrotic states, or losses in exudates precipitate nutritional deficiencies. Also, the little appreciated, but nevertheless extensive in the degree, are the negative protein

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and calcium balances which are prone to occur in experimental studies when normal individuals are confined to bed. Also, unexplained nitrogen losses following trauma may indicate a breakdown of as much as 50 gm. of protein in one day. Patients with uncontrolled diabetes are deficient in protein unless unusually large amounts are given to compensate for the protein utilized to provide calories in the absence of an adequate caloric intake and in the presence of a depressed carbohydrate metabolism. It is our impression that this protein depletion accounts for the susceptibility to cutaneous infections and neuritis in the untreated or poorly treated diabetic patient.

It should be clear that when patients present themselves for hospitalization they may not be in perfect nutritive balance. It is a matter of much importance that nutritional deficits be corrected and further negative balances be prevented if the nutritional aspect is to exert an optimal influence on the course of the disorder which necessitated hospitalization. This is especially true of protein and total calories. There is ample evidence that the precipitous depletion of serum and tissue proteins influence unfavorably the prognosis in severe infections.[2, 3] Also, Cannon[4] has shown that rabbits depleted of serum proteins by plasmapheresis fail to develop antibodies in the presence of disseminated infection. Krebs[5] has demonstrated a depleted gamma globulin fraction of the blood protein in a malnourished patient with a restoration of normal values after the ingestion of a high protein diet for approximately nine weeks.

Adequate total calories are important in that they avoid tissue depletion and spare protein. Protein is drawn upon to supply calories if the total calories are inadequate. Protein also plays an important role in vitamin intake. Proteins of high biologic value carry an appreciable concentration of the B complex vitamins. It would be difficult to overemphasize the necessity of avoiding protein depletion over extended periods. Protein has five main body functions: (1) the plasma albumin maintains blood volume—an emergency function; (2) facilitates wound healing and convalescence from surgical operations and acute infections; (3) hormones, enzymes and antibodies are highly specialized proteins; (4) hemoglobin—a protein—transports oxygen to the tissues, and (5) protein is indispensable for growth and repair of body tissues. This subject has been reviewed by Stare and Thorn[6] for the Council on Food and Nutrition of the American Medical Association.

Recent investigations have dealt with the respective importance of the various nutrients. All is not known about vitamins despite "proof" to the contrary. It cannot be denied that these food essentials deserve a prominent place in the nutrition of the nation but how much better off the public would be if they took them in their natural form —green and yellow vegetables, cod liver oil, butter, brewers yeast, citrus fruits and sunshine rather than in concentrates with a tendency to disregard the diet as a whole. Therapeutic diets should meet recommended standards in respect to these essential food factors but when this is not possible supplementary vitamin concentrates are indicated.

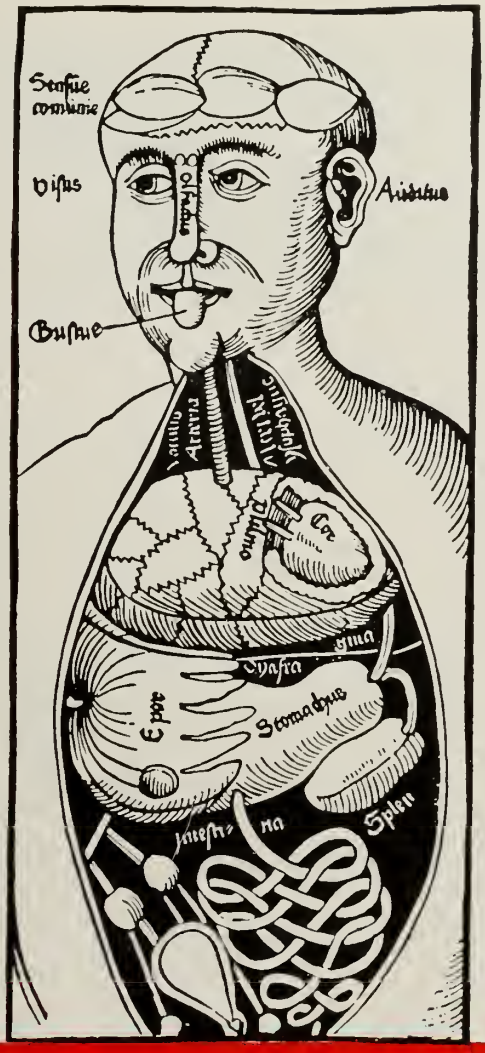
There are some forty identified substances which the body must take from its environment to maintain normal health. It is not surprising that undernutrition involving one or more of these substances is common. It has been supposed that hospitalized patients, directly under the care of physicians, nurses and dietitians, would not be exposed to nutritional hazards. This is not so. Certainly the practice of reducing the diet of patients during acute illnesses is still prevalent. Undernutrition, as a therapeutic measure, is widely used and where it is not actually prescribed it is permitted and hence the subject of this paper—the nutritional hazards of the hospitalized patient. We are not unmindful of the proper place which undernutrition has in the treatment of the overweight and certain diabetic patients.

Physicians who served in general hospitals of the armed services all, I am sure, had the experience of seeing undernourished patients fail to gain despite expert consideration of their diets. They also saw these patients return to the hospital after one or two weeks leave exhibiting a gain of from five to ten pounds as well as a general improvement. What was the difference? In the hospital an adequate diet of the dietitian's choosing is presented to the patient, exactly as is done in hospitals throughout this country and others. Some of the foods appeal to the patient, although the disorder which necessitates his hospitalization may have completely destroyed his desire for food. In any case he takes what appeals to him and the remainder is refused. This goes on day after day. At home his individual likes and dislikes are catered to and foods which do not appeal are replaced by those which do. Hence the undernourished soldier or sailor failed to gain while in the hospital but did so promptly at home.

This type of case, and the development of multiple neuritis, niacin, riboflavin and protein deficiencies with edema in one or another of the hospitals one of us (G.G.D.) has had occasion to visit, prompted a diet survey of the entire patient personnel at the Pennsylvania Hospital in Philadelphia recently. Each patient on each ward was studied for two successive days, a total of six meals, and whatever additional nourishments or vitamins were given. All food delivered to each patient and all leftovers were weighed. In this manner a relatively accurate account of surplus or deficiency in each case was secured. These studies covered three surgical wards, three medical wards, private and semi-private patients and the obstetric and gynecologic division. The calculations are not completed for the entire hospital but those for the medical service are at hand and serve to give an impression of the general trend.

Disease alters the physiologic demands and, in consequence, with the great variety of these altera-

Anotomic woodcut:
Title poge from
Pyligk Compendium;
1516—Courtesy,
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IN 1516:

Anatomic illustrations were crude; knowledge of the anatomy and the treatment of diseases of the heart and thoracic organs were extremely limited.

today: SEARLE **AMINOPHYLLIN***

is widely employed in selected cardiac cases, bronchial asthma, paroxysmal dyspnea and Cheyne-Stokes respiration.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

tions on any hospital ward, it is not known exactly what an individual should have of the various nutrients. It is known that the majority of patients at rest will require fewer calories than when they are active. On the other hand, when ambulant patients are put to bed there is an increase in the losses of nitrogen and calcium. If a positive nitrogen balance is to be maintained, a higher protein intake is then essential. It would appear that the widely practiced custom of reducing the protein intake under this circumstance is erroneous.

In our survey we compare each patient's intake with the respective recommendations by the National Research Council.[7] These recommendations are for the sedentary patient and so are not completely applicable but are close enough to permit of certain conclusions. One might criticize the fixing of a single figure as the requirement for a substance in view of the variability in need. Nevertheless, the Recommended Dietary Allowances represent the best available goal at which to aim our planning in practical dietaries.

It should be pointed out that at our hospital we are nutrition conscious and if the results of this survey show shortcomings they are probably, at least, of no greater degree than occur at institutions in which the staff is not as sensitized to nutritional shortages.

The results of this study on the medical service indicate that nearly every patient had some deficiency in the intake in the study period. Most of these deficiencies were small and probably of no clinical significance. The most satisfactory intake was observed to be in cases in which special detailed consideration was being given to the diet because of the nature of the disease. Outstanding among these were the patients suffering from duodenal ulcer, diabetes with some exceptions, infectious hepatitis and cirrhosis of the liver.

Patients for whom liquid, soft, house or salt free diets were prescribed failed to get the same degree of individual attention and in consequence exhibited the greatest degrees of negative balances. Patients suffering from luetic aortitis for which there is no specific diet therapy revealed great dietary deficiencies. Those suffering from chronic cardiac disease also exhibited consistent deficiencies and especially those for whom salt free diets were prescribed. These patients, who are prone to spend long periods in a hospital, especially are exposed to dietary shortcomings.

The survey proved a valuable check on the dietary department and it is obvious that without the hearty cooperation of this department such a study would be futile. The dietitians were in the position of collecting evidence against themselves as is well illustrated in one case, an overweight diabetic patient. The low calorie diet which was prescribed was not fortified with minerals and vitamins and, in consequence, this patient's intake was grossly deficient in nearly all nutrient factors.

Patient, R. M., aged 79 years, and suffering from carcinoma of the stomach, was returning much of her food untouched and yet when interviewed by the dietitian during the course of this survey she complained of hunger. The difficulty was that this patient had no teeth and had been given a "house diet." A gain in weight ensued when a soft high calorie diet was prescribed.

Patient, J. J., suffering from bronchiectasis, had a deficient intake in all nutrient factors except calcium, riboflavin and vitamin C. With the loss of great quantities of protein in expectorated exudate the negative protein balance was intensified and I have little doubt his ability to cope with the infection was reduced thereby.

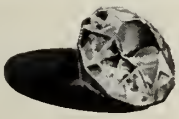
This study to date shows that though proper diets are almost without fail prescribed, the patient's actual intake frequently falls so far short of what is intended that negative nutritional balances of severe degree may ensue. Short periods of hospitalization would not carry the same menace but at this point we make a special plea for greater consideration of the nutritional aspect of the therapy for prolonged hospitalized patients. We would like to include for consideration inmates of institutions such as orphanages, veterans hospitals and old peoples home. The last mentioned have long been considered inferior surgical risks and poorer than average subjects to cope with acute infections. We do not hesitate to lay the blame on a too restricted dietary intake, a plentiful supply notwithstanding. I should like to see a study, as closely controlled as this one, made in a few of these institutions.

In summary, one must assume that a goodly percentage of patients are not in a favorable nutritive balance when admitted to a hospital. Also, the condition which makes hospitalization necessary frequently predisposes to an unfavorable nutritive balance. Superimposed is the anorexia which accompanies bed rest and inactivity and the restricted selection of foods. It is unforunate that it is impracticable to provide the patient with as wide a selection of suitable foods as the normal person may enjoy in a good restaurant or hotel.

The survey briefly reported upon here has shown that it is possible to provide, for physiologic disposition, adequate nutrition even in the face of such pronounced anorexia as occurs in infectious hepatitis. It has shown, on the other hand, that if the nature of the disorder does not attract special attention to the diet that nutritional inadequacies are permited to ensue.

It goes without saying that the proper diet should be prescribed, and that the preparation and serving of the foods should be according to highest standards.

The campaign to insure adequate nutritional intake for hospitalized patients must be continuous. A tray with considerable "left over" food should be the object of investigation by the intern, nurse or dietitian. Visiting staff members will do much to improve the nutritional status of patients if untiring efforts are so directed in the presence of residents, interns, nurses and dietitians and, espe-



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cially, in the presence of the patient who should be impressed with the important influence which proper nourishment may exert on the course of his illness.

An ample supply of all nutrient factors taken orally is ideal. It may be necessary, for some patients, to make the meals small and supplement them, when necessary, with nutritious liquids containing protein concentrates, notably powdered skimmed milk, to be taken, preferably, a short time after each meal.

Tube feeding provides a means of introducing an adequate diet without effort on the part of the patient. It permits very small multiple or continuous feedings and should be employed when the patient is unable to swallow and yet is able to retain food administered in this manner.

Parenteral feeding is a temporary and an emergency measure. It may be the only means of providing nourishment for short periods and as a supplementary measure it has great value but its use should be dedicated by necessity, not by convenience. Fluids, salt, vitamins, glucose and protein may be given in this manner as outlined elsewhere.[8]

The problem of securing optimal nutrition of hospitalized patients embraces: (1) fundamental training of medical students in the practical application of known principles of nutrition, which training is woefully inadequate in some medical schools; (2) the greater appreciation of and training of dietitians in the clinical aspects and problems of nutrition; the columns of food values totalling the correct amounts are important but not until the dietitian sees food from the patient's point of view and not until hospitals are adequately staffed to give highly personalized dietary service to patients having little desire for food will the duty of the dietetic department be fulfilled; (3) the coordination of the supervision by nurses, interns and dietitians in such a manner that a suitable inquiry and corrective measures be put in operation if a patient returns an appreciable amount of food; (4) the constant alertness of visiting physicians to the nutritional status of their patients combined with free discussion with hospital personnel of these problems in the presence of the patient, and (5) the alertness to changes in the understanding of nutrition, being ever ready to reevaluate existing data in the face of new discoveries.

In summary, attention has been drawn to some of the nutritional hazards of hospitalized patients and general measures which will aid in their correction have been outlined.

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CONDYLOMA ACUMINATUM

PODPHYLLIN IN COMPOUND TINCTURE OF BENZOIN AND IMPROVEMENT IN TECHNIC OF TREATMENT

MARK M. MARKS, M.D.
KANSAS CITY, MO.

When podophyllin was introduced as an effective and simple method of treating moist warts by Kaplan,[1] mineral oil was the vehicle. Sullivan and King[2] reported their best results with a 25 per cent mixture of the resin in mineral oil. They allowed contact of the medication on the wart for from eight to ten hours, then washed it off to avoid caustic effects. They were aware of the existence of a problem in protecting healthy tissue from chemical injury.

Podophyllin may be dissolved in compound tincture of benzoin in 15 per cent concentration to make a stable solution. When this is applied to the cleansed and dried verrucae, allowing some to seep into the crevices, the surrounding skin is wiped carefully free of any spillage which may have occurred. The gum quickly dries on the lesions. A light powdering with talc controls residual stickiness and prevents maceration by friction of opposite parts. Following such treatment the warts soon become edematous; inflammation persists a few days, to be followed within a week by involution, shrinkage and a falling away of the shrivelled mass with little or no scar.

The advantage of compound tincture of benzoin as the vehicle lies in the fact that the medicament may, with it, be applied accurately and solely to the site where one wishes it applied. Penile, perianal, vulvar and vaginal condylomata can be treated with equal ease and safety.

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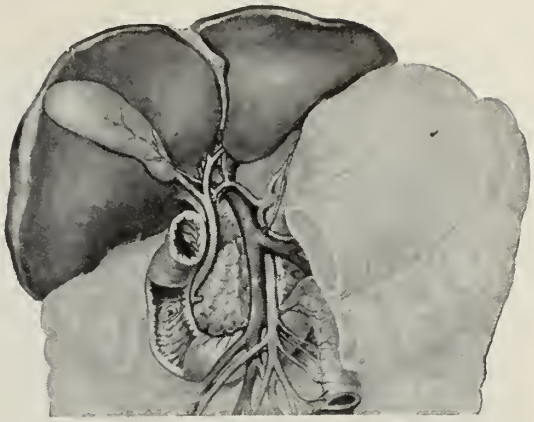
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STUDIES ON TRANSLUMBAR AORTOGRAPHY

A SIMPLE APPARATUS FOR TRANSLUMBAR AORTERIOGRAPHY

A. E. VITT, M.D.,
AND
W. F. MELICK, M.D.
ST. LOUIS

Dos Santos and his workers first presented the method of translumbar aortography in 1929 to the Surgical Society of Paris. He later was invited to this country and presented his method to American urological societies. In the literature there has been much argument and debate about his presentation. Lowsley states that Dos Santos presented one death in twelve cases. Balestra, quoted by Henline and Moore, states that Dos Santos had seven deaths in all; five occurred on the twentieth, six-



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teenth, fourteenth, sixth and fifth days respectively. All were unexplained except for some atheromatous changes in three cases, and the sixth patient died of a hematoma. We have not been able to secure a copy of Balestra's article, which appeared in an Italian journal, but hope to secure a microfilm of it in the near future. Dos Santos himself stated that he had done three hundred cases without accident. Nelson has said that Dos Santos has done more than 2,000 cases without deaths.

Brooks in 1924 was probably the first to use sodium iodide in humans to obtain arteriographs of the legs. Although stating that the method was to be used only when the required information could not be obtained otherwise, he had no untoward reactions in his series of cases.

In 1936 Henline and Moore published their report on an experimental study of aorteriography in dogs. Twenty-one dogs were injected with various contrast media and normal saline. Five dogs showed evidence of hemorrhage due to the puncture, three had toxicity due to the drug and twelve showed no gross or microscopic evidence of damage to the aorta, kidneys, liver or spleen. When sodium iodide was used in their experiments, it was in massive doses, about five times that used in humans.

Probably as a result of this report, little was done on human aortography until Farinas in 1941 published a report on aorteriography. Farinas exposed the femoral artery, inserted a trocar into it and then passed a catheter up through the trocar into the artery and on up the aorta. By injecting 70 per cent diodrast he was able to secure excellent visualization of the aorta. In 1942, first Nelson and then Doss reported the successful use of translumbar aorteriography in the human without any serious complications. Nelson reported that in seventy-three cases, the only complication was acute iodism in four patients. He studied sections of the renal artery after operation had been done following aortography and found no changes in the intima or walls that could be attributed to iodism. We have been able to confirm this finding. Nelson had two cases of extravasation of the media, but neither case had any difficulty. We have had one case of extravasation, operated on three weeks later for a renal tumor, and no evidence of residual damage was found around the aorta. In one of Nelson's cases death occurred following an operation and no damage or hematoma of the aorta was found at autopsy. Wagner recently has reported a case in which an autopsy was secured approximately three months after aorteriography and a tiny, healed slit was found in the aorta. Doss has published numerous reports since his first article in 1942 and has had no fatalities.

APPARATUS

1. Media: The only media which has proven satisfactory thus far is 80 per cent sodium iodide. All workers are in complete agreement that a better media should be found. There is some danger of acute iodism from using such large doses, although Dos Santos stated that it was well tolerated because it was immediately distributed over the entire capillary bed. By immediately giving the patient 1,000 cc. of saline intravenously following the prodecure, this danger is lessened. Nelson has used 70 per cent diodrast and gets a striking picture which he has termed a "renogram," but loses the clear definition of the smaller arteries. We have tried it also with the same results. Sodium iodide in the required concentration also produces pain, necessitating a general anesthesia.

2. Roentgen ray equipment: A machine producing 500 miliamperes must be used so that the exposure can be made in 0.2 second, although with the cooperation of Dr. W. K. Mueller, roentgenologist, we have made good pictures with an exposure of as long as 0.6 second. He feels, however, that from 0.2 to 0.4 second is the ideal exposure to obviate motion and grid marks. A high speed Bucky diaphragm is also essential.

3. Apparatus for injection of the media: Both Nelson and Doss have devised pressure apparatus to inject the media by means of air pressure controlled by valves. Wagner has made satisfactory films by hand injection and points out that this has two advantages: It is much simpler and offers a chance to detect any change in resistance while injecting, thus lessening the danger of extravasation. For a time we attempted to secure aortograms by hand injection but were unable to secure uniform rates of injection. The apparatus shown in figure 1 was secured from A. S. Aloe Company and was made primarily for the injection of sodium pentothal. It is heavily constructed and by turning the wheel rapidly the injection can be completed within a few seconds. The tubing is high pressure tubing and has been securely tied to the Luer locks. The syringe is a 50 cc. syringe fitted with a Luer lock.

4. Needle: Initially we procured some sterling silver needles of Nos. 18 and 20 gauge. The 20 gauge needle is too small to permit rapid injection. These needles are very soft, permiting one to hit the aorta with more certainty, but they bent rapidly with use and were soon destroyed. They also were

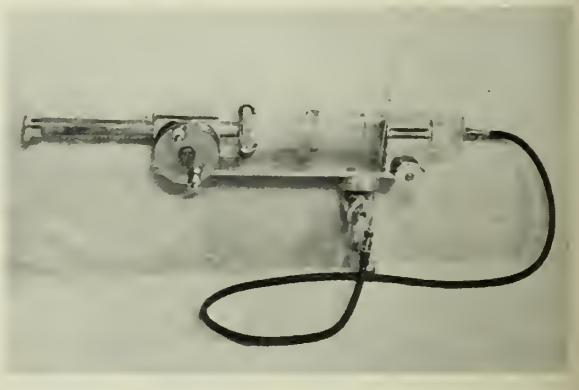
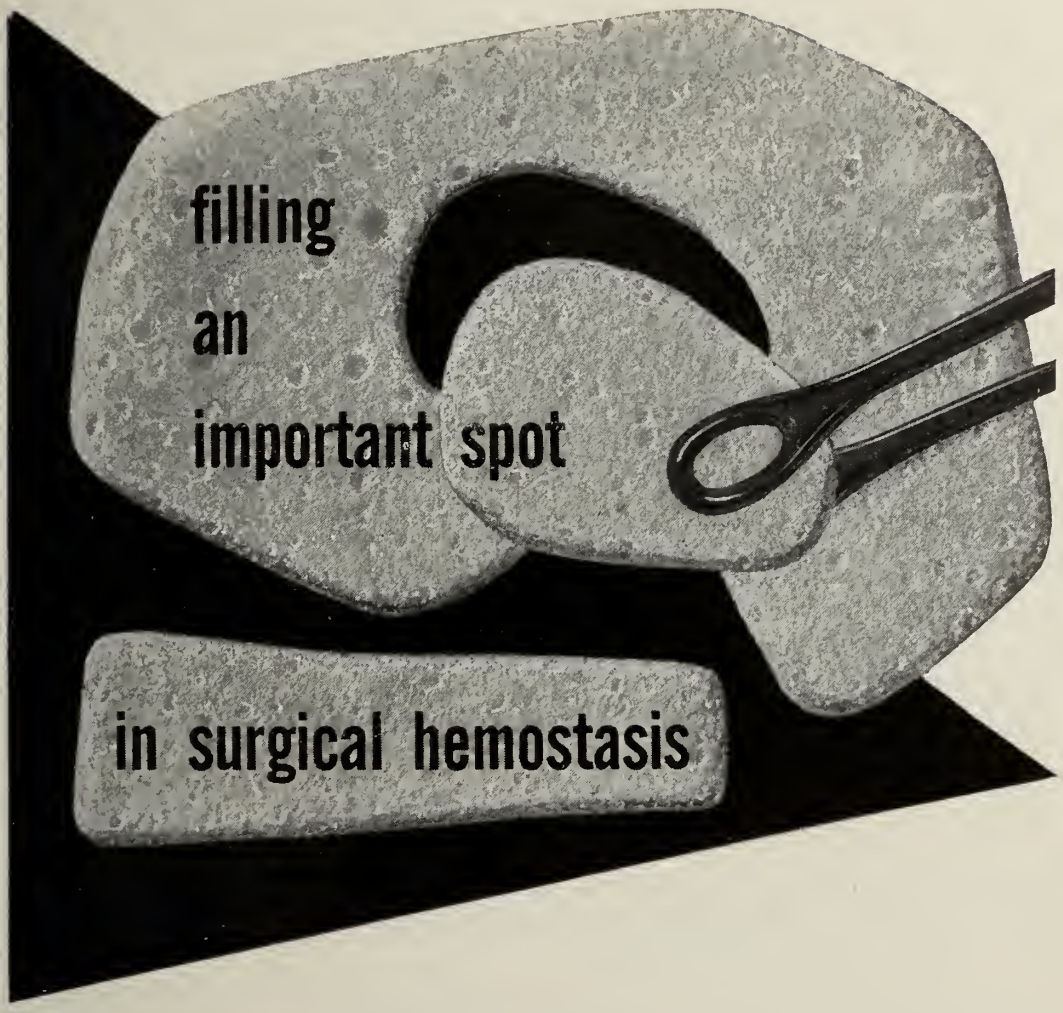


Fig. 1. Syringe holder made by W. & H. Manufacturing Co. 50 cc. syringe with Luer lock, high pressure tubing fitted with Luer lock connections and a 15 cm. 18 gauge needle.



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quite expensive. We now use an ordinary steel needle, 18 gauge and from 15 to 18 cm. long.

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The patient is prepared with castor oil or enema the night before, breakfast is omitted and premedication given. He is placed face down on the roentgen ray table and anesthetized lightly with sodium pentothal. The apparatus is clamped to the edge of the table and the filled syringe and tubing inserted and securely fastened. The area is prepared and the patient draped. The needle is inserted just below the twelfth rib and three or four finger breadths from the spine and directed anteriorly and mesially. When the body of the vertebra is touched, the needle is withdrawn several centimeters and directed more laterally so as to slide over the edge of the body of the vertebra and into the aorta. The aorta gives a sense of resistance when it is entered which has been described as much the same as the dura on a lumbar puncture. The needle also will pulsate when it is touching the aorta. The needle is then introduced into the aorta and the stilette withdrawn. Bright red blood pulsates out in drops. The tubing is attached and the anesthetist warned to deepen the anesthesia. From 10 to 12 cc. of the media is then injected as rapidly as possible and the roentgen ray taken as the last 2 cc. of the media are being injected. Figure 2 illustrates the complete apparatus in use, just before the injection is made.

DISCUSSION

In spite of the report of Henline and Moore in experimental animals, aortography in humans would seem to be a relatively safe procedure as evidenced by the constantly enlarging series of cases which have been reported by a number of investigators to date. In our own small series of cases we have had no complications.

Apart from the danger of acute iodism, which has been taken care of by the immediate administration of saline, the two real dangers seem to be injury to the aorta itself and, secondly, injury to contiguous structures while trying to hit the aorta. Danger to the aorta which might lead to hemorrhage or hematoma would seem to be enhanced in cases of arteriosclerosis with atheromatous placques and hypertension. In our own small series of cases we have had no difficulties thus far, and three of the cases had marked hypertension with systolic pressures of over 200 mm. of mercury. As has already been pointed out, several cases have been reported in the literature which later came to autopsy and demonstrated well healed aortas. In addition, we are in the process of completing anatomic studies which we feel show that there is little danger to associated structures. We also are carrying out experiments with aortas removed at autopsies which show that there is no apparent leakage from the puncture wound made by an 18 gauge needle. We hope to report these studies at a later date and admit that it may not be possible to decide this question until the passage of many years.

There are three types of cases in which one is justified in using aorteriography at present. First is in a case in which one cannot decide the status of a kidney by excretory pyelograms due to poor function and a ureteral catheter cannot be passed due to obstruction. Second is in the case of a tumor of the kidney which produces some clinical manifestations such as bleeding, but the tumor is not large enough to produce pyelographic deformity. Such cases have been reported in the literature. Third is in the case in which renal ischemia is suspected as being the cause of hypertension. Other methods involving calculation of the tubular excretory mass, renal blood flow and inulin clearance cannot be accurtely adapted to each individual kidney and, in addition, are laborious, expensive procedures which are not available to the average physician. The aortogram and the "renogram" give a clear cut picture of the size of each renal artery as well as the overall size of the kidney.

Much remains to be done as far as the interpretion of aortograms is concerned. There are certain typical findings which are diagnostic. Renal cortical carcinomas commonly show a pooling of the media in the vascular sinuses found in these tumors. Retroperitoneal tumors show normal renal vascu-



Fig. 2. Apparatus shown in actual use, just prior to injection.



Fig. 3. A normal aorteriogram, showing good blood supply to a blocked, temporarily nonfunctioning right kidney.



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Fig. 4. Right pyelogram showing essentially normal right kidney after surgical removal of a lower ureteral calculus.

lar beds which may be displaced, and it is also sometimes possible to show the vascular bed of the tumor itself. Doss has pointed out that the use of aortography may lead to better conservative handling of hydronephrosis for, if the arterial supply of a kidney is adequate, presumably the kidney is worth trying to save. Much remains to be done in securing many pictures of normal and known pathologic lesions before one can interpret aorteriograms with as much certainty as pyelograms. It is in the hope of stimulating others to begin this fascinating work also that we have published this preliminary report.

Figure 3 shows an aorteriogram which we secured in a 50 year old white female who had a temperature of 104 F. when admitted to the hospital. Preliminary urologic study revealed a large calcus impacted in the right ureter which could not be passed. Excretory pyelography was completely unsuccessful in showing any function. Translumbar aortography showed a good vascular supply to the right kidney so the calculus was removed from the lower ureter with complete assurance that a good kidney would result. Figure 4 shows the resulting pyelogram made after this was done.

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VISUALIZATION OF THE MATERNAL CIRCULATION AT THE SITE OF THE PLACENTA (PLACENTAGRAMS)

PRELIMINARY REPORT

LEO J. HARTNETT, M.D.
ST. LOUIS

An organ such as the placenta has been found difficult to localize by X-ray alone. Many adjuncts have been employed, none of which have been satisfactory in localizing this organ directly.



Figs. 1, 2, and 3 show the injection of the maternal vessels over the site of the placenta, using a delayed time of exposure.

From the Department of Gynecology and Obstetrics, St. Louis University, St. Louis, Missouri.

Aortograms, the visualization of the aorta and its branches by the injection of radio opaque solution, have been employed to study the arterial system of almost every organ in the abdomen. In the non-pregnant individuals it has been found to be a relatively safe procedure. In 1935, W. E. Coutts, et al, of Santiago, Chile, in a paper entitled "Abdominal Circulation During Late Pregnancy as Shown in Aortograms" reported this procedure in twelve pregnant women. Contained in this article is the statement "In figures 1 and 3 we can observe the injection of some of the placental sinuses, and in figure 3 certain vascular structures appear which apparently do not correspond to the maternal circulation and which we, therefore, believe belong to the fetal circulation."



Fig. 2.



Fig. 3.

Aortograms for the visualization of the aorta and its branches during pregnancy is a process which usually is completed before a greater amount of the solution has reached the vessels over the placental site. It was conceived that by delaying the time of exposure until the solution has reached the placental area an outline of the maternal vessels in this site might be obtained. Such a procedure was carried out at the Firmin Desloge Hospital on eleven pregnant women, all near or at term. The outline of the placental area was obtained as shown in figures 1 to 3. This may be of value particularly in cases wherein knowledge of the location



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Fig. 4. Typical aortogram, with no delay in time of exposure, showing the outline of the aorta and its branches. Injection of the uterine vessels is shown by arrows.

of the placenta is desirable for proper treatment, such as certain cases of placenta previa and abruptio placenta.

While no serious ill effects have been observed to date, there are some immediate maternal and fetal changes. A complete study of these is in progress.

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EARLY POSTPARTUM AMBULATION

WILLIAM L. SMILEY, M.D.
ST. LOUIS

Surgical literature for the last few years has been replete with reports on the values, both physical and economic, of early ambulation in the immediate postoperative period. A somewhat similar trend has occurred in obstetrics with regard to early ambulation of the post partum patient. This practice of early rising in the puerperium is not new; it has been advocated by several clinicians in the last two hundred years. One finds as early as the late 1700's White of Manchester, England, states "As soon as the patient gets out of bed, the better, and this should not be deferred beyond the second or third day at the furthest." A few years later however, one finds Gooch advising that patients be kept in bed three weeks after delivery as a safeguard against prolapse of the uterus. And so opinion has swung from one extreme to the other in regard to the time of ambulation of postpartum patients.

During the recent war the staff of the Homer G. Phillips Hospital, as in most hospitals throughout the country, was reduced greatly. At the same time the number of patients being received on the obstetric service was practically doubled. This combination of reduced staff and increased number of patients soon made it realized that some adjustments had to be made in order to cope with this problem. One of the measures inaugurated was a program of early ambulation in the puerperium. The following is a detailed analysis of the first 514 patients so treated on the obstetric service. This number since that time has increased beyond 2,602.

Clinical Material.—The total number of patients was 514; multigravida, 356; primagravida, 158.

METHOD

1. All patients were permitted bathroom privileges as soon as they reacted from the anesthesia.
2. Patients were encouraged to move freely in bed the first twenty-four hours.
3. On the second day the patient walked around the bed with assistance on four occasions during that day.
4. On the third day the patient walked around the bed with assistance on six or seven occasions during the day.
5. On the fourth day the patient was allowed complete ambulation in the room unassisted.
6. Between the fouruth day and the time of discharge, free ambulation was encouraged with the only reservation being unusual tiredness or exhaustion.
7. Patients were discharged from the hospital from the sixth to ninth day depending upon the need for bed space.
8. After one week at home, the patient was permitted to climb stairs and, at 21 days postpartum, was given complete outdoor ambulation.

Contraindications were (1) any patient whose general condition did not seem to warrant getting out of bed, i.e., unusually long labors, generally poor condition prior to delivery and toxemias; (2) major surgical deliveries (episiotomies and repair of first and second degree lacerations were not classified as major operations); (3) temperature above 99 F.

Types of delivery were vertes, 507, and breech, 7.

All patients received some form of predelivery sedation. This varies from seconal and demerol,

From the Department of Obstetrics and Gynecology, Homer G. Phillips Hospital, St. Louis.
Appreciation is expressed to Drs. L. E. Courtney, J. F. Benson, and C. A. Hancock, house staff officers, for their assistance.

scopolamine and seconal to scopolamine and demerol.

A further classification of the cases showed: outlet forceps 214; low forceps 10; Piper forceps 1 (on the after coming head in a breech); spontaneous vertex 289; left or right mediolateral episiotomies 220; all repairs with 00 chromic sutures; first and second degree lacerations 27 (occurring in spontaneous deliveries); number of lacerations repaired 27; postpartum hemorrhage 6 (5 controlled by oxytocic alone; 1 required intrauterine culture and douche and intrauterine pack of sulfathiazole impregnated gauze).

At the outset the entire ward was divided into a regular ambulation ward and the early ambulation ward. Patients were alternated as to the type of ambulation they received. Two months after the beginning of this program, so many patients were asking to be assigned to the early ambulation ward that the regular ambulation ward was abandoned and the entire service placed on the early rising program.

RESULTS

Patients reported that they felt better generally. It was significant to note that multipara who had been previously managed under the old regime showed preference for the new program.

Lochia.—The lochia was increased for the first four or five days, but rapidly subsided after that time.

Bladder.—Catheterizations were seldom necessary despite the fact that many of these patients had been delivered under saddle block anesthesia. Nor was there any need for the routine enema usually given on the third day.

Involution.—The uterus showed good involution. It was rapid and complete by the tenth day. Episiotomies and repaired lacerations were quite painful during the first and second day of the early ambulation, but healing was rapid and after the patients had been reassured that the pain would subside, little trouble was experienced.

Morbidity.—There were seven cases of morbidity, which could not be attributed to the early ambulation, in the whole series. There were two cases of acute salpingitis which subsided on sulfa drugs and bed rest; three cases of pyelitis, and two cases of mastitis. All subsided under specific therapy and in no case was the patient's discharge from the hospital delayed because of the condition.

Six Weeks' Examination.—Six weeks' examinations were performed in the postpartum clinic and in the Municipal Clinics throughout the city. These Municipal Clinics had been told about the program and the physicians were asked to examine these patients with particular emphasis on the healing of the perineum, relaxation of the pelvic floor, involution of the uterus and the general welfare of the patient. All reports showed good involution and a general feeling of well-being on the part of the patient. The incidence of low backache, which is fairly common among some patients, was

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definitely reduced. It has been impossible to follow enough of these patients after the six weeks' examination to give statistical data regarding their course; however, the general impression is that there have been no unfavorable developments which could be attributed to early ambulation.

DISCUSSION

Early ambulation was begun with an understandable amount of anxiety and trepidation upon the part of the staff. There was an equally understandable reluctance upon the part of patients in their first contact with such a program. This reluctance was much more pronounced and much more difficult to overcome with private patients than in the ward services. However, as more and more patients experienced general improvement resulting from early ambulation, reluctance changed to enthusiasm and actual insistence that they be handled in this manner.

The outstanding advantages obtained from this regime in our estimation were:

1. There was definite improvement in the feeling of well-being on the part of the patient and delight in being able to walk about, particularly in being able to go to the bathroom, thus eliminating the use of the bed pan.
2. The staff was impressed by the lack of bladder and bowel disturbances. Reduction in the number of catheterizations and enemas to be given was a boon to the nursing staff, which was left free for special duties on the more serious pathologic cases.
3. The failure to find any increase in subinvolution, or retrodisplacement and the satisfactory healing of perineal wounds was evidence of the safety of such regime.

There was a definite increase in the lochial flow during the earlier days and it was felt that the patients should be told beforehand that this will occur but will cease in from eight to ten days and that they need have no fear because of the increased bleeding on first arising.

It is much too early to say whether early ambulation will have any future deleterious effects, particularly in regard to relaxations, which usually do not develop until ten to fifteen years after the first pregnancy. Up to now there seems to be little reason to expect any increase in such relaxations.

CONCLUSIONS

A study of the first 514 cases of early ambulation in the puerperium from a series which now totals 2,602 cases, has been presented. The evidence supports the belief that early ambulation offers both physical and economic advantages to the obstetric patient. Further, it does not, at least on the basis of present observations, increase the danger to the patients. An open mind as to the later developments and careful, continued observation of patients coming under such a regime, however, is suggested.

Homer G. Phillips Hospital.

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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 10, October, 1947.

CARCINOMA SIMULATING PULMONARY TUBERCULOSIS

The roentgen appearance of a circumscribed pulmonary carcinoma may be simulated by a solitary noncavitary tuberculous focus. In any large series of pneumonectomies for bronchial carcinoma, there will be cases in which lungs containing an isolated, large, tuberculous nodule have been excised. In the two cases reported here, the situation was reversed. These patients were treated for pulmonary tuberculosis for many months before the neoplastic nature of the lesions was recognized.

Case 1: A 61-year-old man had a roentgen film of his chest made in an industrial survey in December, 1943. He was told that he had a tuberculous lesion and was referred to his family physician. After further X-ray study, the physician agreed with this diagnosis. The film showed a faint amorphous density, about 2 cm. in diameter, in the subapical portion of the right upper lobe. The mesial and lower borders of the density appeared somewhat rounded and it faded off laterally into several streaks. A lateral film showed that the lesion was located in the posterior portion of the lobe, a predilection site for early tuberculosis. A chest film made routinely three years previous had disclosed normal lung fields.

He was sent to a tuberculosis institution but no tubercle bacilli could be found in specimens of gastric contents. Since he remained free of symptoms and the lesion appeared unchanged, he was discharged after eight weeks. Four months later, the lesion appeared denser and was 3 cm. in diameter. One month later there was further increase in the size and density of the lesion. The borders were sharper and the diameter measured about 4 cm. Another physician then thought that the patient had a circumscribed pulmonary carcinoma.

On admission to the hospital the patient was found to be well nourished. Physical examination showed no abnormality aside from slight clubbing of the fingers. Tubercle bacilli could not be demonstrated and bronchoscopy did not reveal abnormal findings.

The chest was explored on July 12, 1944. A walnut-shaped mass was palpated in the right upper lobe which was removed, together with the adherent right middle lobe and the regional lymph nodes. On section, the tumor was found sharply circumscribed and proved to be an epidermoid carcinoma. The lymph nodes showed no tumor cells. There was no evidence of a tuberculous lesion. There was no recurrence of the tumor two years after operation.

Circumstances leading to the correct diagnosis

"Man that is born of a woman is of few days, and full of trouble." Job XIV, 1



Even in the face of great advances in medical knowledge, the lives of many infants are still literally "of few days and full of trouble," for 62.1% of the total infant mortality occurs within 30 days after birth.* During this fatal first month, every precaution must be taken to ward off troubles of early infancy.

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*Vital Statistics—Special Reports. Vol. 25, No 12, National Office of Vital Statistics, Washington, D. C. (Oct. 15) 1946, p. 206.

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in the second case parallel those of the first.

Case 2: A woman of 43 had an industrial chest survey film made in April, 1944. A right upper lobe lesion was found and, after study, the patient was told that she had arrested pulmonary tuberculosis. There were no pulmonary symptoms. The shadow was faint, appeared oval-shaped and measured about 2 cm. in diameter. Its outer border was hazy and several streaks extended from it peripherally. Since tubercle bacilli could not be demonstrated in the body secretions, the patient was allowed to return to work.

Six months later a film revealed a few moth-eaten areas of lesser density within the shadow, but the size was unchanged. Three months later, the shadow was larger and stood out more sharply from the surrounding lung parenchyma. Eight months later the shadow measured 4 cm. in diameter. Her physicians decided that she had active tuberculosis and recommended sanatorium care. She consulted another physician who thought that her film series indicated the presence of a slow-growing circumscribed neoplasm.

On admission to the hospital, the patient had no complaints and physical examination disclosed no abnormalities. No other primary site could be found nor was there any evidence of distant metastatic lesions. A posterior-anterior view of the chest showed a dense oval shadow in the right upper lobe. The lateral chest film showed the lesion to be located in the posterior portion of the upper lobe and sectional radiography disclosed several irregular areas of decreased density within it.

The first attempt to explore the chest was abandoned because the patient went into severe shock. At the second operation two weeks later a partial lobectomy of the portion of the lobe containing the tumor was performed. No involvement of the lymph nodes, pleura or chest wall was noted.

Grossly, the specimen showed a well circumscribed oval neoplasm; in its center were several small areas of necrosis; it was an adenocarcinoma. A small bronchopulmonary lymph node showed no tumor cells. No tuberculous lesions could be found.

These two cases point up some of the difficulties in differentiating a slow-growing circumscribed neoplasm of the lung and a solitary tuberculous focus, particularly when the lesion is situated in the upper lobes. A proper evaluation of the alterations in the appearance of the lesion on successive films was crucial in both these cases, since neither of the patients had any symptoms. Circumscribed bronchial carcinoma may be silent for a prolonged period and, in this respect, behaves like many cases of early pulmonary tuberculosis.

At the present time, physicians are aware that pulmonary tuberculosis produces few symptoms and signs at its onset and that the diagnosis must be made in this stage if the chances of recovery are to be maximum. This is no less true of the circumscribed varieties of bronchial carcinoma. Mass surveys and routine chest roentgenography are becoming the important methods by which operable pulmonary cancers are discovered. The two cases reported here were mistaken for pulmonary tuberculosis for seven and sixteen months, respectively, before they were admitted to a hospital for surgery.

Carcinoma Simulating Pulmonary Tuberculosis, Louis E. Siltzbach, M.D., The American Review of Tuberculosis, February, 1947.

BOOK REVIEW

Postgraduate Obstetrics, by William F. Mengert, M.D., Professor and Chairman, Department of Obstetrics and Gynecology, Southwestern Medical College, Chairman, Obstetrics and Gynecology, Parkland Hospital, Dallas, Texas. With 123 Illustrations. Drawings by Ruth Maxwell Sanders, Department of Medical Art, Southwestern Medical College. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, New York. London. 1947. Price $5.00.

Mengert's "Postgraduate Obstetrics" is a compact, concise and easily readable book. Useful information is readily available on any of the many aspects of obstetric care. There is rarely a place in the book that one cannot agree with the author as it mirrors the experience of most obstetricians.

The author does not attempt to give highly specialized information, but refers the reader to exceptionally well chosen references. The size of the book and the size of the type will encourage the occasional medical library patron to pick up and glance at its contents.

L. R. G.

Synopsis of Operative Surgery, by H. E. Mobley, M.D., F.A.C.S., Chief of Surgery at St. Anthony's Hospital, Morrilton, Arkansas. With 383 Test Illustrations, Including 37 in Color. Second Edition. C. V. Mosby Company. St. Louis. 1947. Price $6.00.

This is a handbook on surgery which is in fact a "once over lightly" review of surgical operations as of 1947. While the reviewer does not presume to be conversant with the many specialties dealt with in this concentrated volume, the standard procedures in general surgery are well described.

It is not the purpose of the book to be a manual for operating or dissecting but rather a concise synopsis. For the medical student, many of the difficult operations would appear very simple. To appreciate the descriptions it is necessary to have a well rounded experience in surgery.

One paragraph — page 310 on appendectomy — calls for comment. Contrary to the text, the generally accepted procedure is to do an appendectomy if the diagnosis is made. There are few exceptions to this general rule, as in cases of appendiceal abscess, but generally most surgeons remove the appendix if the diagnosis of appendicitis is made. It has been well established that appendectomy within the first twelve to twenty-four hours has a low mortality while the danger increases as the time progresses into the third to fifth day.

Suture material shows some geographical trends. On page 266, the author mentions chromic cat gut for dermal suture. In the East, silk is popular; in the South, cotton; and in the Midwest, silk predominates, also some surgical gut is employed.

The book is a definite asset to the surgeon's library, to be supplemented by books on surgical technic in general surgery or the specialties.

F. H. W.

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OCTOBER, 1947

EDITORIALS

GOLD MEDAL FOR GENERAL PRACTITIONER

The Board of Trustees of the American Medical Association has established a special gold medal for a general practitioner who has rendered exceptional service to his community.

The award similar to the American Medical Association's Distinguished Service Medal, which has been given annually since 1938 for scientific advancement in the field of medicine, will be given to a general practitioner for the first time at the supplemental session of the House of Delegates at Cleveland on January 7, 1948.

Designed especially for the physician who has served his people as a family doctor and who does not devote himself exclusively to a specialty in medicine, the award will be known as "the medal of the American Medical Association for exceptional service by a general practitioner."

Nominations for the award may be submitted to the headquarters office of the American Medical Association in Chicago by any state medical association or community service club, such as Rotary, Kiwanis or Lions Club, Chamber of Commerce, Women's club, community council or similar group. The nomination should include the name and address of the physician, his scholastic record and a record of his medical service in the community.

Nominations will be submitted to the executive committee of the Section on General Practice of Medicine of the American Medical Association, which is composed of Wingate M. Johnson, M.D., Winston-Salem, North Carolina; Paul A. Davis, M.D., Akron, Ohio, and E. A. Royston, M.D., Los Angeles. This committee will select five leading candidates for nomination for submission to the Board of Trustees, which, in turn, will nominate three of these to the House of Delegates. On the opening day's meeting at the supplemental session the House of Delegates will choose by ballot the general practitioner who will receive the medal.

E. L. Henderson, M.D., Louisville, chairman of the Board of Trustees, said that "this annual award will stimulate the interest of the medical profession and the American people in the tremendous service by general practitioners all over the country in caring for the sick."

WOMAN'S AUXILIARY ESSAY CONTEST

"Heroes of Medicine, 1847-1947" is the subject of the annual essay contest of the Woman's Auxiliary to the Missouri State Medical Association, it has been announced by Mrs. W. F. Oehler, Cape Girardeau, chairman of the auxiliary's health essay contest committee, and Mrs. W. L. Allee, Eldon, President of the auxiliary.

The contest is open to students of all public, parochial and private high schools of Missouri and winners will be announced during the Association's Annual Session in St. Louis next March. The winner of the first award will be a guest at the banquet of the Association during that meeting.

The winner of the first award will receive a $100.00 war bond. Second award will be a $50.00 war bond, and there will be three additional awards of a $25.00 war bond each. Ten essays will receive honorable mention.

The judges of the contest are: Hubert Wheeler, Commissioner, Department of Education, State of Missouri, Jefferson City; Rev. Father J. Clement Ryan, S.J., Acting Chairman of the Division of Languages and Literature, Rockhurst College, Kansas City; H. O. Grauel, Professor of English, Southeast Missouri State College, Cape Girardeau; C. F. Martin, Head of the English Department, Central Missouri State College, Warrensburg; Frank W. Grube, Chairman of the Department of English, Northwest Missouri State College, Maryville; Virginia Craig, Emeritus Head of the Department of English, Southwest Missouri State College, Springfield; Berniece B. Beggs, Assistant Professor of English Education, Northeast Missouri State College, Kirksville; Mrs. W. L. Allee, President, Woman's Auxiliary, Eldon, and W. H. Breuer, M.D., Adviser to the Woman's Auxiliary, St. James.

Essays are to be submitted not later than midnight January 15, 1948, and are to be mailed to Mrs. W. F. Oehler, Chairman, Essay Contest, 623 Missouri Theatre Bldg., St. Louis 3. Students may secure detailed information at their high school or by writing the Missouri State Medical Association, 623 Missouri Theatre Bldg., St. Louis 3, Mo.

NEW DRUGS

The recent trend of popular magazines to give medical information to their readers has had two very different effects on the medical profession. It has tended to make the general public more conscious of their health and proper care, which is good.

Many articles, however, have announced new drugs, sometimes when they at least should be still in the experimental stage. Not in connection with the demand that such articles create in patients but in recognition that a new drug cannot be used

in every patient with the same effect, an article by Carl A. Dragstedt, M.D., Chicago, in a recent issue of the *Journal of the American Medical Association* points out that idiosyncrasies to new drugs limit the general use. In part he says:

"Just as the physical examination of a patient usually fails to reveal anything informative as to the risk of idiosyncrasy on the part of a particular patient, so does the chemical examination of a drug usually fail to inform the physician of the potentiality that it may have. A representative of one of the drug firms told me, half in jest but half in earnest, that he was about ready to conclude that the most economical procedure with respect to a new drug would be to determine whether a large number of people could take it without untoward reactions before spending a lot of money in the laboratory and clinic to determine what it might do.

"Consider the course of events attending the advent of a new drug. It is synthesized by the chemists. It undergoes various screening tests as to its actions and effects by the pharmacologists. Its toxicity is surveyed in some laboratory animals. It is distributed for controlled clinical investigation. It shows some therapeutic merit. It is released for general therapeutic trial and then—usually within three or four months—reports describing its unexpected and untoward reactions begin to appear. Was this not the story with dinitrophenol, the various sulfonamide compounds, penicillin, thiouracil, trimethadione and many others? . . . This is obviously an unsatisfactory state of affairs begging for a solution. The medical profession has largely abandoned such drugs as dinitrophenol, aminopyrine and cinchophen in cases in which the therapeutic need does not warrant the therapeutic risk and has had its use of many other drugs definitely circumscribed."

An "idiosyncrasy," according to Dr. Dragstedt, means "a qualitative abnormality in the response to drugs, signifying such effects as urticaria, neuritis, jaundice, anemia, leukopenia and the like, which some drugs produce in some persons but do not produce in the majority, irrespective of the dose employed."

Some reactions, such as hives, skin inflammation and asthma, seem to be allergic; others do not. Dr. Dragstedt emphasizes that the two important aspects of the problem of idiosyncrasy are, however, "the ability to forecast the likelihood of idiosyncrasy on the part of a given drug, and the ability to control or treat the reactions that occur. With respect to the latter it seems clear that the general methods of preventing and treating allergic reactions would be different from those appropriate to the nonallergic responses. With respect to the former there are hints . . . that the propensity of a drug to produce untoward reactions in man might be determined by a more exacting study of its effects in experimental animals. . . . Perhaps with the aid of a complete menagerie, the physician might learn to foretell all the possibilities."

NEWS NOTES

Hugh L. Dwyer, M.D., Kansas City, spoke over WDAF on August 22 on "Rabies."

Jesse E. Douglass, M.D., Webb City, spoke before the Joplin Kiwanis Club on August 12 and gave a brief review of the history of the treatment of tuberculosis.

Vern T. Bickel, M.D., Lamar, spoke before the Lamar Rotary Club on August 13 demonstrating by roentgenograms the use of x-ray in the setting of fractures.

Missouri State Medical Board Examinations will be given on October 20, 21, 22, 1947, in St. Louis, by the State Board of Medical Examiners of Missouri.

The Excelsior Surgical Club, a national organization of surgeons who served in the Mediterranean Theater during World War II, will meet in St. Louis on October 17 and 18. The Edward D. Churchill Lecture will be presented by Evarts A. Graham, M.D., St. Louis, at the St. Louis Medical Society at 8:30 p. m., October 17, on the subject "Some Aspects of Bronchiogenic Carcinoma." The lecture was inaugurated in 1946 in honor of Dr. Churchill, the John Homans Professor of Surgery of Massachusetts General Hospital, who was Chief Surgical Consultant in the Mediterranean Theater of Operations during World War II. The medical profession is invited to attend this lecture.

The annual fall meeting of the Missouri Society for Neurology and Psychiatry will be held at the Glenwood Sanatorium, 1300 Grant Road, Webster Groves, Missouri, on October 14 at 1:00 p. m. David A. Boyd, M.D., Indianapolis, Chairman of the Department of Neurology and Psychiatry, and Professor of Psychiatry at the Indiana School of Medicine, will be the principal speaker. He also will address a public meeting that evening in St. Louis. Among other speakers will be Ernest Parsons, M.D., Nathan Blackman, M.D., and Robert Britt, M.D., St. Louis. Interested physicians are cordially invited and asked to notify Paul Hines, M.D., president of the society and medical director of the Glenwood Sanatorium.

The American Academy of Allergy will hold its annual convention at Hotel Jefferson, St. Louis, December 15 to 17. All physicians interested in allergic problems are cordially invited to attend the sessions as guests of the Academy by registering without payment of fee. The program has been arranged to cover a wide variety of conditions in

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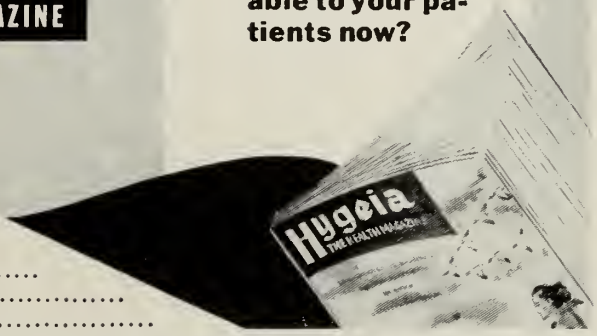
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which allergic factors may be important. Papers will be presented dealing with the latest methods of diagnosis and treatment as well as the results of investigation and research. Round table conferences will be held on Monday afternoon, December 15. Advance copies of the program may be obtained by writing to the Chairman on Arrangements, Charles H. Eyermann, M.D., 634 North Grand Boulevard, St. Louis.

The following initiates from Missouri were accepted into fellowship of the American College of Surgeons at the 33rd convocation in New York on September 12: Irwin T. Craig, M.D., Virgil E. Jeans, M.D., Sidney W. Scorse, M.D., Paul W. Walker, M.D., Joplin; Harry B. Stauffer, M.D., Jefferson City; Ronald M. Buck, M.D., St. Joseph; Curtis H. Epps, M.D., Springfield; Jack Gilford, M.D., Columbia; Phillip H. Halperin, M.D., Thomas M. Johnson, M.D., William W. Leifer, M.D., James H. O'Neil, M.D., Barnard C. Trowbridge, M.D., Kansas City; Franz Arzt, M.D., Norman B. Chan-Pong, M.D., Harold M. Cutler, M.D., Ora J. Gibson, M.D., Eugene G. Hamilton, M.D., Philip S. Luedde, M.D., Curtis A. Meyer, M.D., Harry K. Purcell, M.D., Nathan A. Womack, M.D., St. Louis.

Evarts A. Graham, M.D., St. Louis, has been appointed by the Board of Regents of the American College of Surgeons on a committee to cooperate with a similar committee from the American Medical Association to work on problems of mutual interest to both organizations.

Inauguration of the first comprehensive statewide program of rehabilitation for the estimated 5,000 children in the state afflicted with cerebral palsy has been announced by J. Archer O'Reilly, M.D., St. Louis, chairman of the board, and Frank D. Dickson, M.D., Kansas City, president of the Missouri Society for Crippled Children and Adults, Inc.

DEATHS

Loewenstein, Harry M., M.D., St. Louis, a graduate of Washington University School of Medicine, 1902; member of the St. Louis Medical Society; fellow of the American Medical Association; aged 70 years; died August 6.

Coffee, Cyrus E., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1911; member of the St. Louis Medical Society; fellow of the American Medical Association; aged 69; died August 9.

Waihoja, William J., M.D., Lebanon, a graduate of the Medical College of Virginia, Richmond, 1936; member of the Laclede County Medical Society; fellow of the American Medical Association; aged 39; died August 22.

Sheetz, Bertha E. S., M.D., Trenton, a graduate of the College of Physicians and Surgeons, Kansas City, 1901; member and former president of the Grundy-Daviess County Medical Society; aged 68; died September 2.

Walker, Lester L., M.D., Bel-Nor, a graduate of the St. Louis College of Physicians and Surgeons, 1907; honor member of the St. Louis Medical Society; fellow of the American Medical Association; aged 65; died September 4.

Vitt, Rudolph S., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1904; member of the St. Louis Medical Society; aged 73; died September 9.

Rohlfing, Arthur H., M.D., St. Louis, a graduate of Washington University School of Medicine, 1904; member of the St. Louis Medical Society; aged 64; died September 14.

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for September and October, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

October 1: Miscellaneous.
October 3: Gynecologic and Genitourinary.
October 8: Skin.
October 10: Breast.
October 15: Gastrointestinal.
October 17: Cervix.
October 22: Skin.
October 24: Head and Neck.
October 29: Bone and Lymphomas.
October 31: Miscellaneous.
November 5: Miscellaneous.
November 7: Gynecologic and Genitourinary.
November 12: Skin.
November 14: Breast.
November 19: Gastrointestinal.
November 21: Cervix.
November 26: Skin.
November 28: Head and Neck.

SOCIETY PROCEEDINGS

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met in Mountain Grove on August 15 for dinner at the Antlers Cafe. After dinner the meeting convened in Dr. Ryan's office with the following members present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains; R. A. Ryan, M.D., R. W. Denney, M.D., and H. G. Frame, M.D., Mountain Grove; Leslie Randall, M.D., and H. L. Reed, M.D., Licking; C. F. Callihan, M.D., Willow Springs; Garrett Hogg, Jr., M.D., Cabool.

The guest speaker was E. L. Evans, Jr., M.D., Springfield, who gave an instructive talk on "Genito-urinary Problems in Children," stressing acute urinary infections and the methods of diagnosis and treatment of this condition. A vote of thanks was given Dr. Evans.

The meeting adjourned to meet in Cabool on September 19.

Garett Hogg, Jr., M.D., Secretary pro tem.

Meeting of September 19

The South Central Counties Medical Society met at the El Patio Hotel, Cabool, on September 19, for dinner

with the following members and visitors present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; R. A. Ryan, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; R. T. Harsh, M.D., Houston; Leslie Randall, M.D., and H. L. Reed, M.D., Licking; C. F. Callihan, M.D., Willow Springs; E. C. Bohrer, M.D., and Rollin H. Smith, M.D., West Plains; C. W. Cooper, M.D., Thayer; E. E. Glenn, M.D., and W. S. Sewell, M.D., Springfield.

Following dinner the meeting convened in Dr. Hogg's office and was called to order by the president, Dr. Mott, and the minutes of the last meeting were read and approved.

Dr. Glenn spoke on "Digitalis," giving a history of its use, the different preparations on the market, its action and the indications for its use.

Dr. Sewell spoke on the work being done by the Community Health League, that its efforts may be better understood and appreciated by physicians.

Both talks were appreciated and the speakers were given a vote of thanks.

The meeting adjourned to meet in Mountain Grove, October 17.

A. C. AMES, M.D., Secretary.

BOOK REVIEW

PRACTICAL MALARIOLOGY, Prepared under the Auspices of the Division of Medical Sciences of the National Research Council. By Paul F. Russell, M.D., M.P.H., Colonel, M.C., A.U.S., Parasitology Division, The Army Medical School. Field Staff, International Health Division, Rockefeller Foundation (on leave), and Luther S. West, Ph.D., Head of Biology Department, Northern Michigan College of Education, Major, Sn.C., A.U.S., (reserve); Formerly Entomologist, Parasitology Division, Army Medical School, and Reginald D. Manwell, Sc.D., Professor of Zoology, Syracuse University, New York. Formerly Captain Sn.C., A.U.S., Protozoology Section, Parasitology Division, Army Medical School. Foreword by Raymond B. Fosdick, President of the Rockefeller Foundation. 238 Illustrations, 8 in color. W. B. Saunders Company, Philadelphia and London. 1946. Price $8.00.

This book represents an effort to summarize the recent advances which have taken place in the study of malaria. The authors, all of whom are well-schooled in the science of malaria, have gathered up the vast amount of literature concerning this subject and have integrated it along with new developments as well as the old, setting forth a well-balanced treatise on this particular subject.

This manual on practical malariology is presented in an interesting manner and is prepared largely in the fashion of a standard textbook. It opens with a few brief remarks concerning the history and then presents a section which devotes itself to a complete discussion of the parasite, including all features of the life cycle, morphology, and physiology. Animal plasmodia are discussed, and then a division deals with the laboratory technic.

The second section of the book follows a very similar outline in regards to the mosquito. The next sections are equally adequate on the pathologic and clinical aspects and treatment of malaria as it occurs in man, with a few notes pertaining to immunity, latency and relapse. The concluding portions of the book discuss the effects of malaria upon the community and the prophylaxis and control of malaria.

The book is well written. The diagrams, photomicrographs and blood smears are of excellent quality. The book is a timely edition, considering the world-wide aspect of this disease. A. E. U.

WOMAN'S AUXILIARY

Missouri State Medical Association

WOMAN'S AUXILIARY OF THE ST. LOUIS COUNTY MEDICAL SOCIETY

The Woman's Auxiliary of the St. Louis County Medical Society opened their 1947-1948 season with a tea on September 24 introducing their newly elected officers to the wives of the members of the St. Louis County Medical Society. The officers are Mrs. W. S. Brown, president; Mrs. Richard Sutter, vice president and president-elect; Mrs. Martyn Shattyn, secretary; Mrs. R. A. Walther, treasurer, and Mrs. Harry Stein, auditor. The tea was given at the home of the President-elect of the Woman's Auxiliary to the Missouri State Medical Association, Mrs. John O'Connell, Overland, from 2:00 to 4:00 p. m. Four of the Auxiliary's past presidents, Mrs. Eugene R. Brown, Mrs. Robert B. Denny, Sr., Mrs. Clyde P. Dyer and Mrs. T. J. Kemp, served.

Mrs. W. S. Brown, president, has selected a capable committee to assist her this season and an outstanding program has been arranged for the members. Her committee is Mrs. Sigmund Tashma, Program; Mrs. Chester H. Denny, Press and Publicity; Mrs. C. E. Gilliland, *Hygeia;* Mrs. Julius Jensen, Public Relations; Mrs. M. H. Scheele, Hospitality; Mrs. John O'Connell, Membership; Mrs. F. L. Finley, Year Book; Mrs. Paul R. Whitener, Courtesy; Mrs. Roy Compton, Essay, and Mrs. Richard Sutter, Archives.

BOOK REVIEW

TEXTBOOK OF MEDICINE, A—Edited by Russell L. Cecil, A.B., M.D., Sc.D., Professor of Clinical Medicine, Cornell University Medical College; Consulting Physician, New York and Veterans' Hospitals; Visiting Physician, Bellevue Hospital, New York City. With the Assistance of Walsh McDermott, M.D., Associate Professor of Medicine, Cornell University Medical College. Associate Editor for Diseases of the Nervous System Harold G. Wolff, M.D., Associate Professor of Neurology, Cornell University Medical College. Seventh Edition, Illustrated. W. B. Saunders Company. Philadelphia and London. 1947. Price $10.00.

In 1927, as a junior medical student, this reviewer started the study of clinical medicine with the first edition of Cecil's "Textbook of Medicine." In consequence, it has been especially interesting to compare the new seventh edition.

Physically, the new edition is green instead of blue, and the type is double column to the page instead of single column. The thickness seems to be only slightly greater. Inside, there have been many changes in the subject matter, although the general plan of arrangement is the same. Dr. Walsh McDermott is now an assistant editor; and Dr. Harold G. Wolff has replaced Dr. Foster Kennedy as editor of "Diseases of the Nervous System."

The seventh edition contains sixteen articles on diseases not covered in the last edition, and some fifty-three additional subjects have been extensively rewritten. Due to death and retirement the list of contributors has changed considerably as well as increased in number. Many of the contributors appear to have had especially rich experience in the fields in which they write.

All the virtues of the first edition appear to be retained. The seventh edition is an improvement of a preeminent "Textbook of Medicine." B. S. P.

BOOK REVIEWS

Nutritional and Vitamin Therapy in General Practice, by Edgar S. Gordon, M.D., Ph.D., Associate Professor of Medicine, University of Wisconsin. Third Edition. 1947. Year Book Publishers, Inc. Price $5.00.

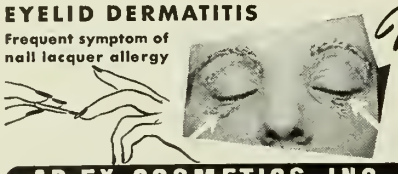
The last three decades have witnessed a steady stream of investigation having to do with the ultimate dietary constituents. The entire subject has become increasingly complex as apparent gaps in knowledge have been clarified by research—only to lay bare still larger fields of ignorance. Had Darwin and Huxley been aware of the varying roles played by identical vitamins in the metabolic processes of different animals they might even have formulated another concept of evolution.

The present volume is a concise adaptation of present learning in this dangerous field. It offers a straightforward recital of today's knowledge with a slight emphasis upon the point of view that vitamins may be purchased with food instead of separately (and expensively) packaged. It will not appeal to the physician whose primary interest is in the practice of clinical medicine; it will prove informative to him who likes to delve into the more philosophic aspects of his profession. B. Y. G.

Hygiene, A textbook for college students on Physical and Mental health from personal and public aspects, by Florence L. Meredith, B.Sc., M.D., Fellow of the American Medical, American Public Health, and American Psychiatric Associations; Professor of Hygiene and Public Health, Tufts College. Fourth Edition. The Blakiston Company, Philadelphia-Toronto. 1946. Price $4.00.

The fourth edition of this book which has been modified to take into account the scientific advances during the five years since its third publication, is an excellent text for college students and a good reference work for those on the high school level. It is readable, informative, well organized and admirably serves its general purpose. While it is not intended for the medical profession, the physician might find it valuable as a condensed source of material covering the field of health and likewise consider its excellent bibliography and tables of food values usuable. M. M. M.

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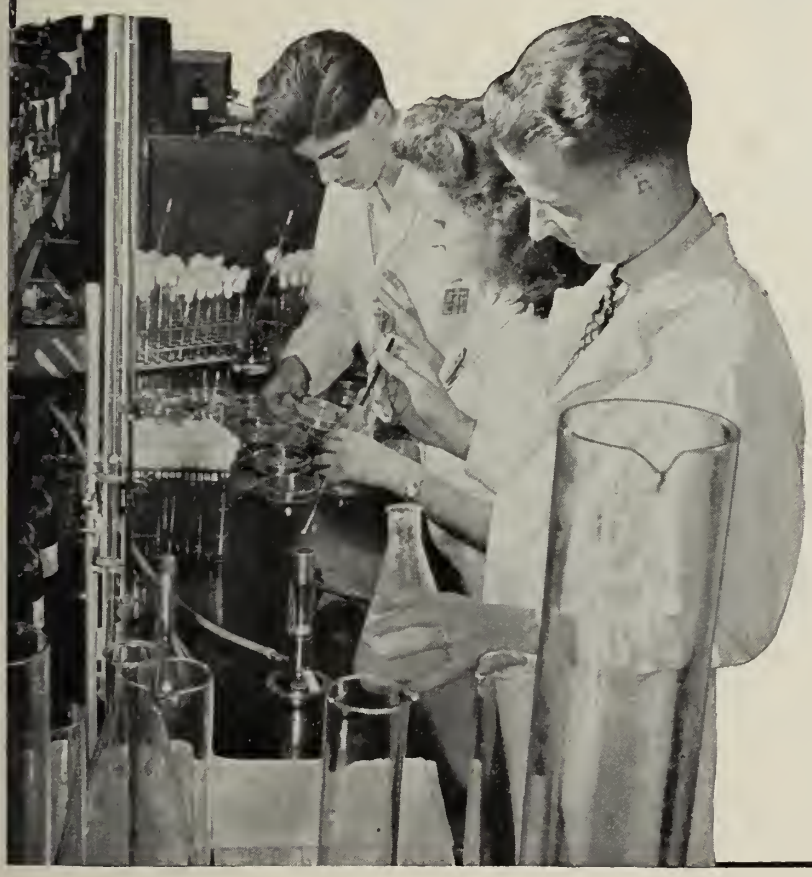
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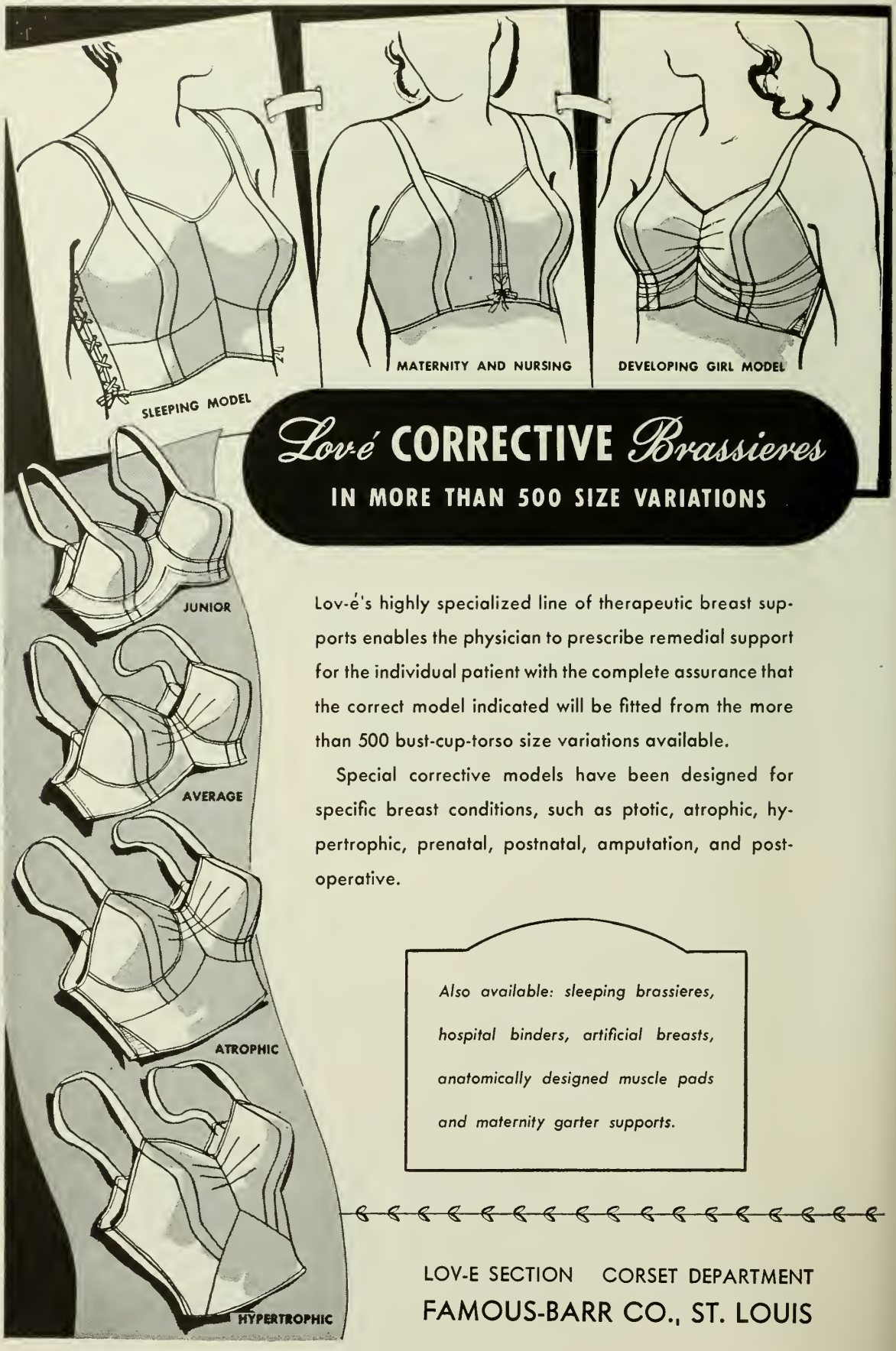
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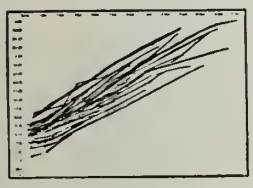
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INDEX TO ADVERTISERS

Abbott Laboratories 724
Ames Company 748, 749
Ar-Ex Cosmetics, Inc. 766
Arlington Chemical 747
Ayerst, McKenna & Harrison 771

Bilhuber-Knoll Corporation 725
Borcherdt Malt Extract Co. 766
Borden Company 722
Burroughs Wellcome & Company 759

Camel Cigarettes 723
Camp, S. H. & Company 772
Ciba Pharmaceutical Products, Inc. 721
Ciba Pharmaceutical Products, Inc. ..... Insert
Cook County Graduate School of Medicine 768

Duncan Laboratories 775
Durex Products, Inc. 725

Faith Hospital 778

General Electric X-ray Corporation 779
Glenwood Sanatorium 776
Gradwohl School of Laboratory Technique 770

Hamilton-Schmidt Surgical Company 766
Hanger, J. E., Inc. 770
Hygeia 763

Isle, W. E., Company 778

Lilly, Eli and Company ..... Insert
Lov-e Brassiere Company 774

M & R Dietetic Laboratories, Inc. 781
Major Clinic Association 717
Mead Johnson & Company 784
Medical Protective Company 728
Merck & Company, Inc. 773
Milwaukee Sanitarium 763
Miscellaneous Announcements 782
Mullen Ambulance Company 778

National Dairy Products Corporation 753
National Pathological Laboratory 782
Norbury Sanatorium 778
North Shore Health Resort 770

Parke, Davis & Company 714, 715, 783
Philip Morris & Company 767
Physicians Casualty Association 768
Pogue, Mary E. School 755
Producers Creamery Company 768

Quincy X-ray and Radium Laboratories 766

Ralph Sanitarium 726
Robinson Clinic 778

Schmid, Julius, Inc. 769
Searle, G. D. & Company 745
Smith-Dorsey Company 777
Squibb, E. R. & Sons 719
Stokes Sanitarium 782

Upjohn Company 751
U. S. Brewers Foundation, Inc. 757

Wallace Sanitarium 776
Wander Company, The 727
Washington University School of Medicine 780, 782
Winthrop Chemical Company 716
Worrell, Dorothy 782

Zemmer Company 766

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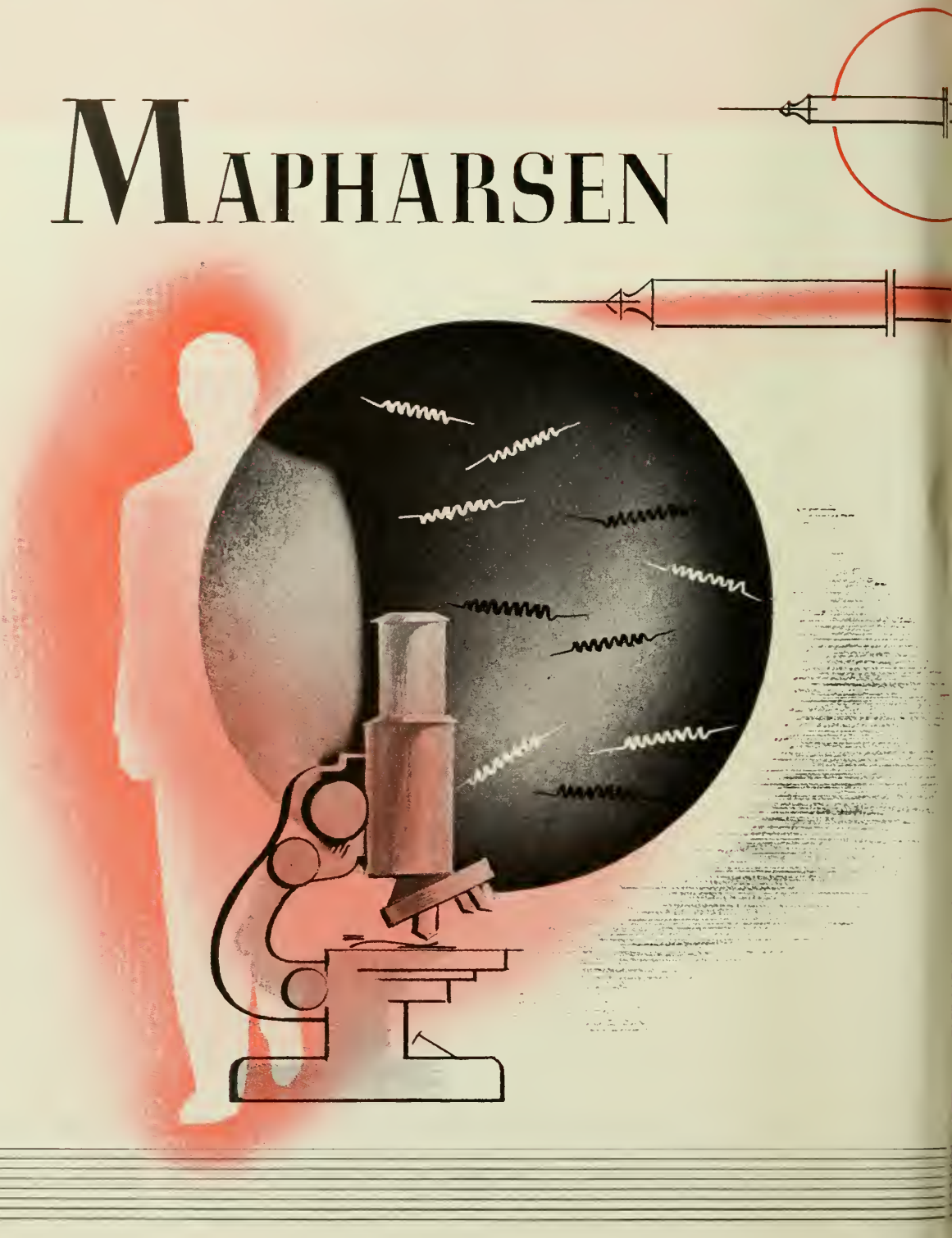
EDITORIALS

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(Contents Index Page 789)

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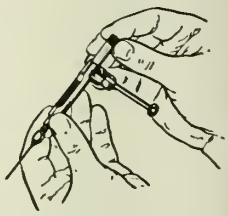


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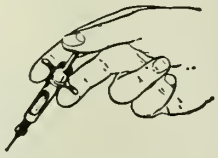


1 Syringe breech is displaced to one side by pulling up on the plunger.



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CONTENTS

Chemotherapy in Surgery. W. A. Altemeier, M.D., Cincinnati, Ohio 803

Chemotherapy in Medical Conditions. Donald R. Nichols, M.D., Rochester, Minnesota..... 809

The Medical Care of the Veteran. Robert M. Zollinger, M.D., Columbus, Ohio..... 813

The Development of the Veterans Administration Residency Training Program. Franklin E. Walton, M.D., St. Louis 824

Abstracts and Digests—
Tuberculosis Death Rate Fails to Tell the Entire Story 828

Editorials—

Medical Sidelights 831

Health Education Workshop 831

Kansas City Southwest Clinical Society..... 831

Annual Session 831

A. M. A. Directory Information Being Collected 832

Vascular Allergy 832

News Notes 834

Organization Activities 836

Miscellany 840

Society Proceedings 844

Woman's Auxiliary 844

Book Reviews 844, 846

Commercial Announcement 862

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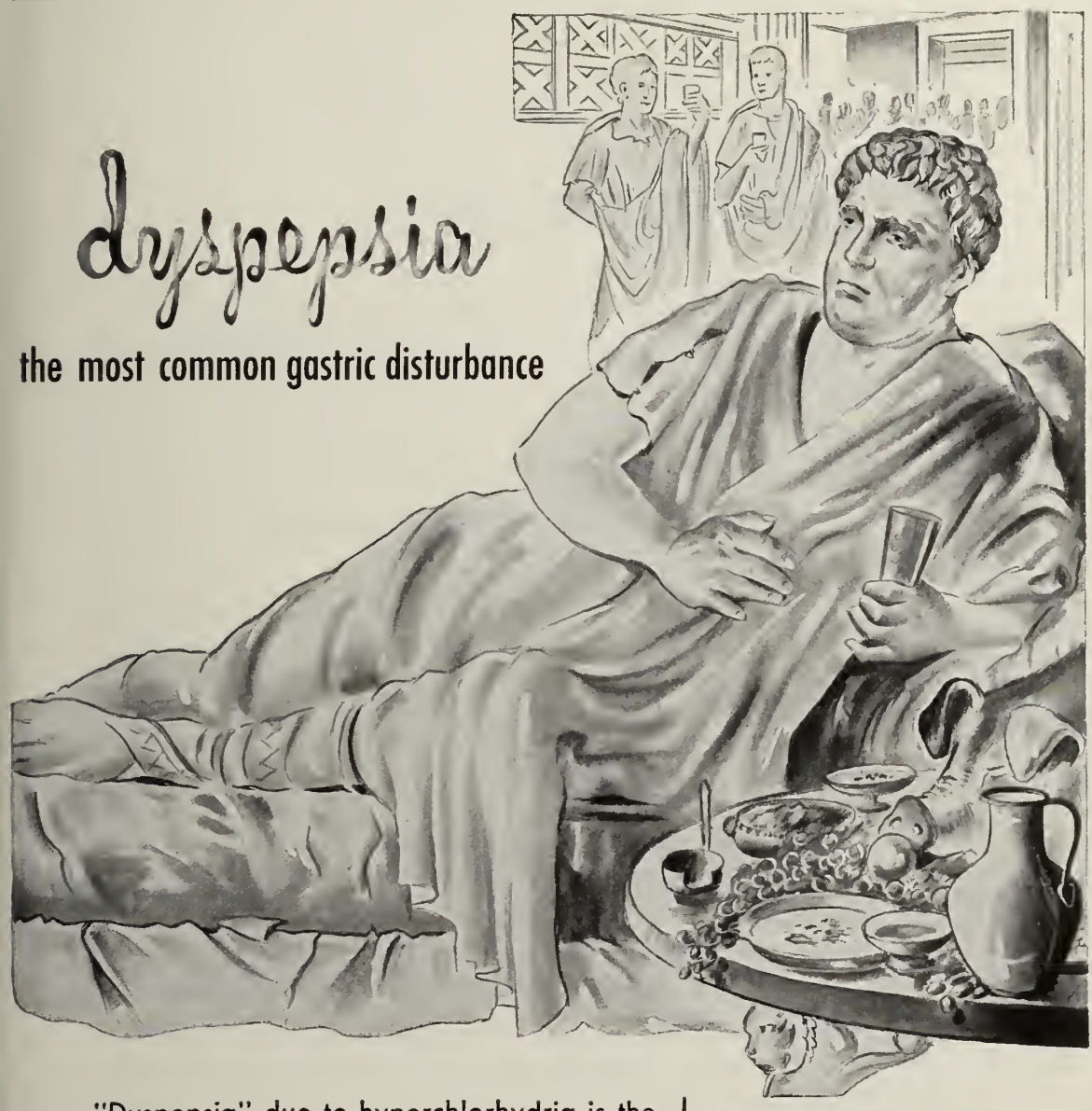
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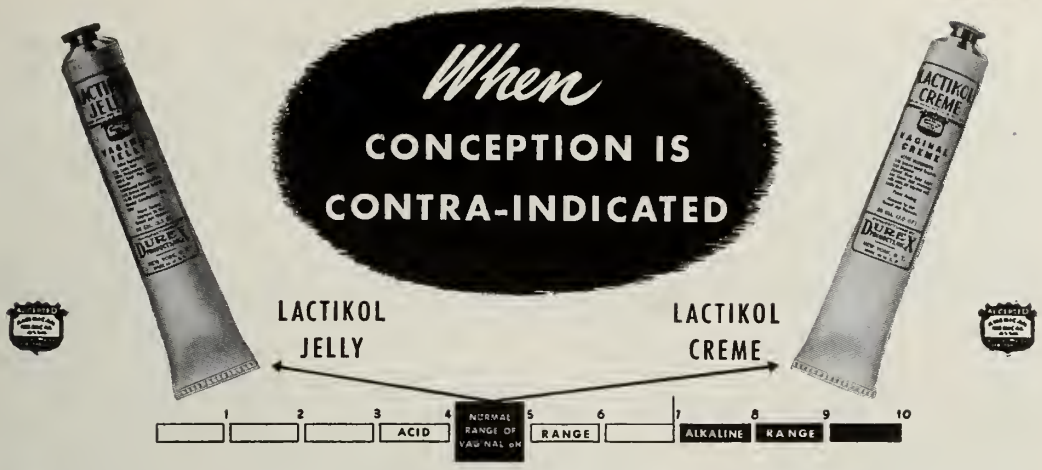
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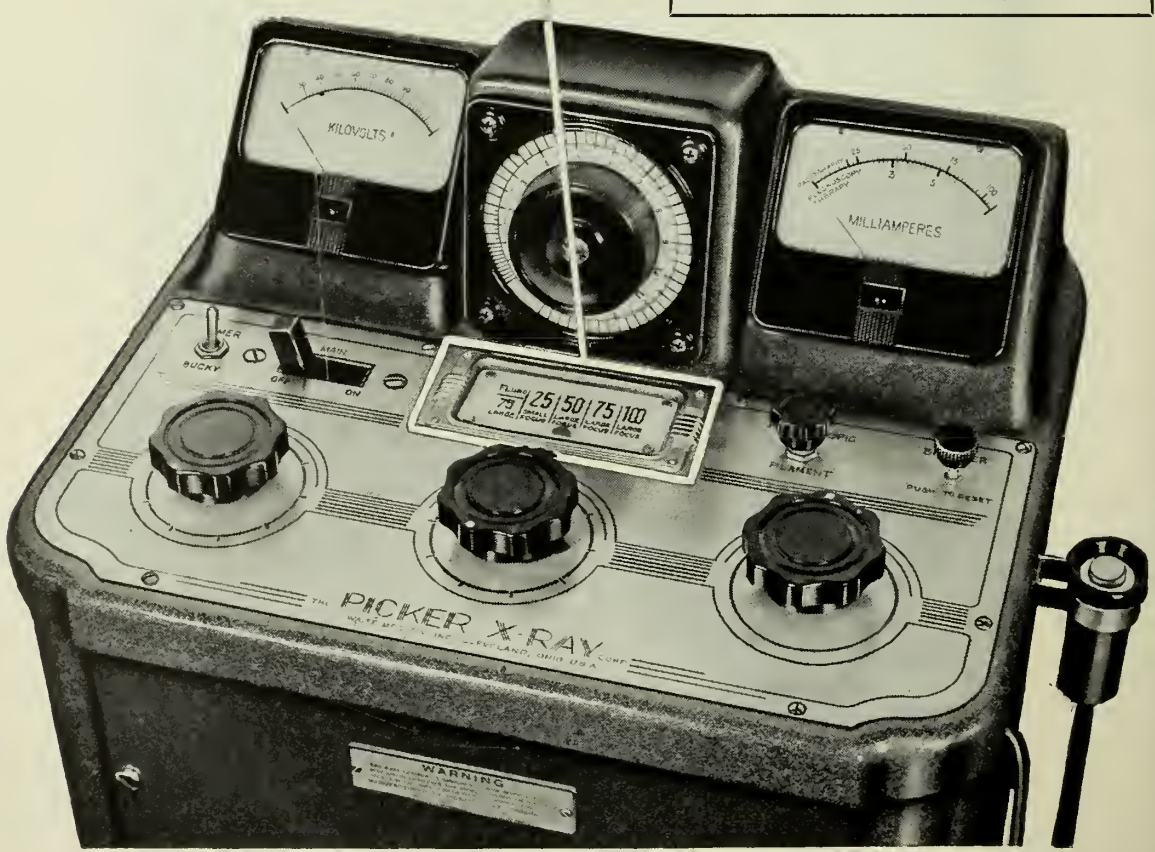
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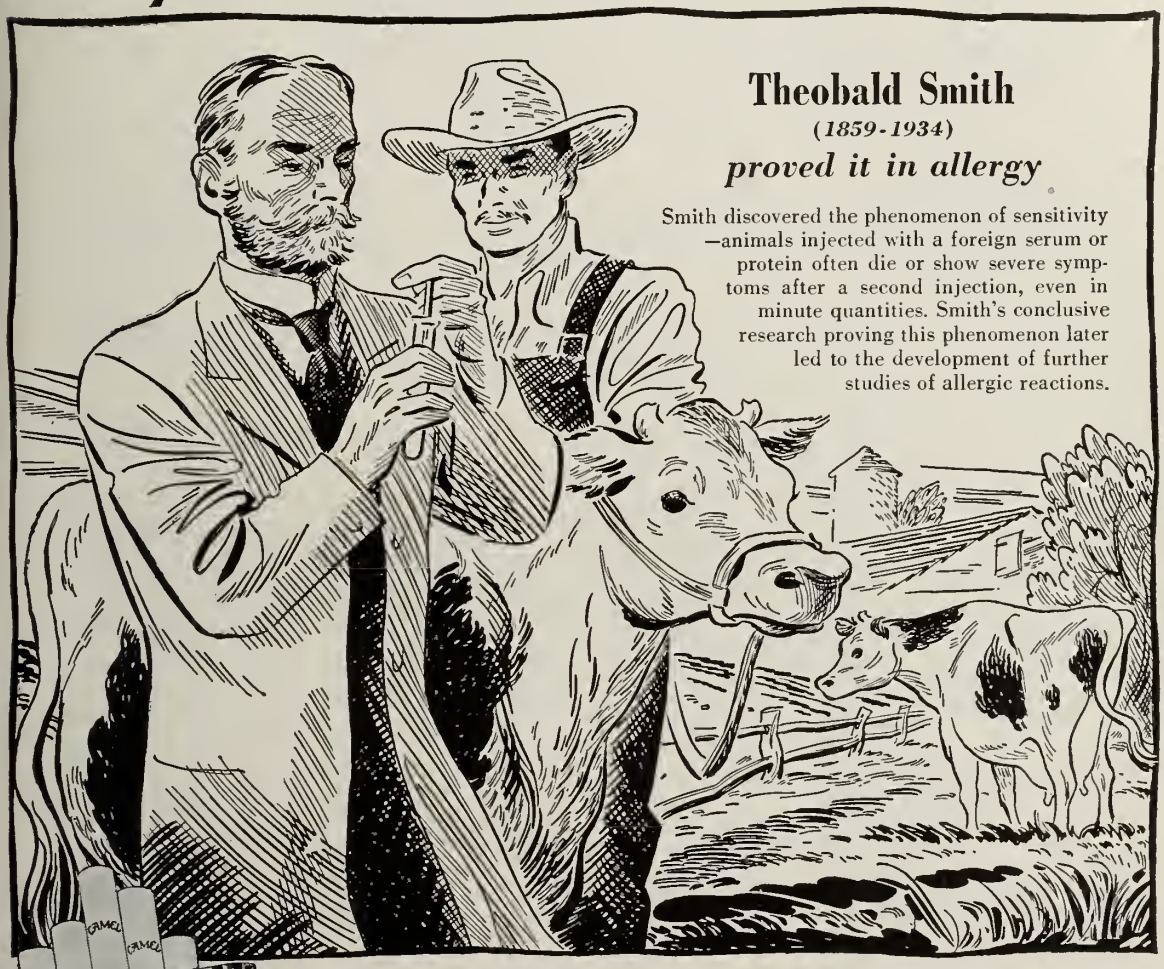
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CHEMOTHERAPY IN SURGERY

W. A. ALTEMEIER, M.D.
CINCINNATI

Chemotherapy has had a profound effect on modern surgery. Not only has it provided effective means of controlling many types of established infections, but it has permitted expansion and technical development in various fields whose progress had previously been thwarted by postoperative infection. The actual onset of practical chemotherapy for bacterial infection was in 1935 when Domagk introduced prontosil. Before then and ever since the establishment of the germ concept of disease, physicians had searched futilely for an effective bactericidal or bacteriostatic chemical agent which could be administered without harmful effect to diseased patients. Many substances were found that killed bacteria in vitro even in high dilutions, but the very qualities that made them bactericidal also caused them to be toxic to human tissues.

With the discovery that sulfanilamide was the active ingredient of prontosil, the new chemotherapeutic era became well established. Clinical experience has proved that sulfadiazine is the least toxic for systemic administration and the sulfonamide of choice in surgical infections. Its correct use has revolutionized the management of many infections, but it has also frequently been misused. All types of infection, diagnosed and undiagnosed, suspectible and non susceptible, have been treated, and its inadequately controlled administration has caused unnecessary toxic reactions which have given rise to a false impression among some surgeons that sulfadiazine is too dangerous for practical use. A brief consideration of the prophylactic and therapeutic indications for sulfonamide therapy in surgical conditions therefore seems advisable.

Sulfonamide Prophylaxis.—Experimental and clinical experience has shown that the systemic or local use of the sulfonamides will not prevent the development of local infection in contaminated wounds, but there is definite evidence that systemically administered sulfadiazine keeps infection more localized, thereby preventing invasive infections. In addition the impression has been gained that local infections developing under systemic sulfadiazine thereapy have often been attenuated, developing more slowly and responding to treatment more readily.

In penetrating wounds of the abdomen, the prophylactic value of the sulfonamides has been more obvious as was shown in a comparison between a group of 161 cases treated with prophylactic sulfonamide therapy, operation and supportive measures and another group of 104 similar cases treated without sulfonamide therapy.

Table I. *Comparison of the Incidence of the Causes of Death in Penetrating Wounds of the Abdomen Before and After Chemotherapy.*

104 Cases Admitted Between Jan. 1938 and Jan. 1942		161 Cases Admitted Between Jan. 1942 and May 1946	
Mortality Rate	27.9%	Mortality Rate	11.6%
Causes of Death	*No. Cases*	*Causes of Death*	*No. Cases*
Peritonitis	9 (31.0%)	Hemorrhage	7 (30.4%)
Hemorrhage	7 (24.1%)	Pneumania	4 (17.4%)
Shock	6 (21.3%)	Putrefactive empyema	4 (17.4%
Pneumonia	5 (17.2%)	Peritonitis	2 (8.7%)
Others	2 (6.8%)	Others	4 (17.4%)

Before the use of sulfonamide therapy, peritonitis was responsible for 31.0 per cent of the deaths in this series, while it was a contributing cause of death in only two instances in the cases treated with sulfonamides, a significant reduction. There is also evidence that systemic sulfadiazine therapy has had a similar beneficial effect in operations for resection of the bowel by greatly reducing the incidence postoperative peritonitis.

Sulfonamide Therapeusis.—The value of sulfonamide therapy has been unquestionably established in acute infections produced by the hemolytic streptococcus, the pneumococcus and the gonococcus, but it has been of little or no value in those caused by the hemolytic staphylococcus. Its advantages of low cost, ease of administration and high bacteriostatic action often make it the drug of choice.

In certain mixed infections produced by various

From the Department of Surgery of the University of Cincinnati College of Medicine and Cincinnati General Hospital.
Presented at the 89th Annual Session of the Missouri State Medical Association, Kansas City, March 30-April 2, 1947.

gram-negative and gram-positive bacteria of the intestinal tract, sulfadiazine has been a valuable drug. In vitro studies on examples of mixed bacterial florae show that its marked bacteriostatic action is usually superior to that of penicillin in the usual concentrations which are built up in the blood during systemic therapy. Clinical experience likewise has demonstrated the effectiveness of this form of chemotherapy in mixed infections.

Certain limitations of sulfonamide therapy have become increasingly apparent, including: (1) the inactivation of bacteriostatic activity by inhibitors found in pus, wound exudates and necrotic tissue; (2) the presence of bacterial species and group resistance; (3) the inability to penetrate areas of pus and necrosis; (4) the development of drug fastness by many of the infecting bacteria; (5) the occurrence of some toxic reactions when its administration was not carefully controlled, and (6) the occasional occurrence of drug idiosyncrasy.

With the introduction of penicillin, many of these limitations have been overcome. The sulfonamide inhibitors have little or no effect on the bacteriostatic action of penicillin and its extremely low toxicity has been of equal significance. Doses of one million units every three hours have been used repeatedly and in one instance a child received 100,000,000 units each twenty-four hours for two weeks without evidence of toxicity. The toxic reactions that have occurred during penicillin therapy have been due largely to impurities or idiosyncrasies, and it is very significant that the threshold of toxicity as yet is undetermined.

Penicillin Prophylaxis.—Experimental studies and clinical experience have shown that the systemic or local use of penicillin likewise will not prevent the development of local infection in contaminated wounds, but there is ample evidence that parenterally administered penicillin may attenuate, inhibit or localize any infection that does develop within the wound, thereby preventing invasive infection. Since the staphylococci commonly cause wound infections, penicillin is superior to the sulfonamides for this purpose.

The effective control of postoperative infections by the preoperative and postoperative use of adequate doses of parenteral penicillin has permitted the successful undertaking of more daring and dangerous operative procedures, particularly in the thorax, thereby greatly stimulating advancement in this field.

Penicillin Therapeusis.—Penicillin is the most effective chemotherapeutic agent available at the present time for the treatment of many surgical infections, particularly those caused by the staphylococci, the aerobic streptococci, the gonococci and the anaerobic streptococci. Evidence of its superiority over the various sulfonamides in the therapy of staphylococcal infections is overwhelming, and its effectiveness in infections caused by sulfonamide-resistant strains of the streptococcus and gonococcus has been outstanding. More recently the very low toxicity of penicillin has permitted exploration of the clinical value of very large doses in infections produced by bacteria resistant or slightly susceptible to its action as well as in mixed infections such as secondary peritonitis. The encouraging results obtained justify a more thorough investigation of the therapeutic possibilities of large doses up to one million or more units every three hours.

Between November 1942 and February 1947, 754 surgical infections treated with penicillin, surgery when indicated and the general and local supportive measures necessary for the correction of altered physiology have been studied and they included the following:

Staphylococcal infections	464
Pneumococcal infections	70
Anaerobic streptococcal infections	24
Aerobic streptococcal infections	94
Gonococcal infections	48
Actinomycotic infections	17
Human bite infections	9
Ratbite fever infections	8
Gas gangrene infections	15
Pyodermia gangrenosa infections	5

Experience has shown that penicillin is the chemotherapeutic agent of choice in the treatment of all staphylococcal infections in surgery and that it has replaced all previous forms of chemotherapy. An arbitrary tabulation of the clinical results obtained with penicillin in the treatment of the 464 cases with established staphylococcal infections is given in table 2.

Table 2. *Results in Penicillin Therapy Staphylococcal Infections*

		Results			
Clinical Diagnosis	*No. Cases*	*Excellent*	*Good*	*Questionable*	*Failure*
Septicemia	51	22	15	..	14
Cellulitis	54	26	25	2	1
Carbuncles	57	37	18	1	1
Furunculosis	33	24	7	2	0
Acute hematogenous osteomyelitis	60	28	29	2	1
Chronic osteomyelitis	59	9	27	14	9
Infected wounds	58	35	18	1	4
Abscess	17	9	8	..	..
Hand infections	23	17	4	2	..
Abscesses of lung	13	5	2	..	6
Brain abscess	2	1	..	..	1
Bursitis	8	6	2	..	..
Postoperative parotitis	7	5	2	..	..
Chromic lymphadenitis with lymphoedema	5	..	4	1	..
Abdominal sinus	4	..	1	..	3
Hydradenitis suppurative	10	8	2	..	..
Pericarditis	2	1	1	..	..
Spinal epidural abscess	1	..	1	..	..

The value of penicillin therapy was particularly apparent in the treatment of the severe staphylococcal infections with invasive manifestations.

In early diffuse infections, penicillin therapy often produced complete and spontaneous resolution with a minimal amount of local destruction of tissues. If the diagnosis was made late, however, the invasive qualities of the infection were overcome and the process was localized, but necrosis of tissue usually occurred. Frequently penicillin so controlled the invasive qualities of staphylococcal infections that emergency radical surgical decompression or excision of infected areas was eliminated or replaced by more conservative local types of surgery.

Early, accurate and complete diagnosis was of considerable importance in determining the results

obtained with penicillin therapy in regard to morbidity, mortality and functional results. The presence of secondary or metastatic infectious complications usually delayed or prevented a complete response to chemotherapy. Failures were associated with overwhelming infections in patients who were moribund before the start of penicillin, incomplete diagnosis, the presence of endocarditis, penicillin-fast staphylococci or infections in the aged. An analysis of its effect on staphylococcal septicemia, carbuncles, acute hematogenous osteomyelitis, chronic osteomyelitis and acute postoperative parotitis gives a more accurate impression of the value and limitations of penicillin in the management of staphylococcal infections.

STAPHYLOCOCCAL SEPTICEMIA

The intelligent use of penicillin has reduced greatly the high mortality and prolonged morbidity of staphylococcal septicemia. In the past, patients surviving the initial primary infection frequently succumbed to the later infectious complications such as secondary or tertiary abscesses which were often multiple and inaccessible to surgery. For these reasons and the lack of any method of controlling the staphylococcus in remote or unknown areas, the mortality of established staphylococcal septicemia was very high, varying between 60 and 90 per cent in various series, and averaging 79 per cent. When the infection spread to the meninges or became engrafted upon heart valves, the mortality approached 100 per cent.

The obvious values and limitations of penicillin therapy in the management of this condition are illustrated in a recent study of ninety-one cases of hemolytic staphylococcus septicemia at the Cincinnati General and neighboring hospitals between 1940 and 1946. A total of forty cases of staphylococcus septicemia were treated between 1940 and 1942 with sulfonamides, surgery when indicated, or bacteriophage, and a similar series of fifty-one cases were treated with penicillin in addition to other medical and surgical measures between 1943 and 1946. Table 3 illustrates the profound effect penicillin has had upon this condition.

Table 3. *Staphylococcal Septicemia*

	40 Cases Treated with Sulfadiazine, Bacteriophage, etc. 1940—1943	51 Cases Treated with Penicillin. 1943—1946
Mortality	67.6%	30.0%
Recovery	32.5%	70.0%

It is apparent that penicillin has approximately reversed the mortality and recovery rates. Whereas only 32.5 per cent recovered under sulfonamide, bacteriophage and other forms of therapy, 70 per cent recovered under penicillin therapy. A further analysis of the fatal cases reveals some of the limitations of penicillin therapy (table 4).

Table 4. *Fatal Cases of Staphylococcal Septicemia*

No. of Cases	Diagnosis
6	Vegetative endocarditis
3	Pneumonia
1	Infected burns of 60% body surface
1	Cavernous sinus thrombosis
1	Otitis media with lateral sinus thrombosis
1	Pemphigus
1	Acute osteomyelitis (terminal)

The results in the cases developing vegetative endocarditis, particularly early in the series were very poor, and this condition accounted for almost half of the deaths. Of the remaining eight fatal cases, five of the deaths occurred within from twelve to forty-eight hours after their admission to the hospital and start of penicillin treatment. In these instances, the fulminating infection or moribund condition of the patient produced death before the maximum chemotherapeutic effect could become manifest. In the case of the infected burn, the staphylococcus aureus was resistant to the action of penicillin.

Experience has shown that therapy was most successful in young adults or children in whom the diagnosis of staphylococcal bacteremia was made early, penicillin therapy given early and intensively, and surgical drainage was possible when indicated. Inadequate treatment predisposed to relapse. The outcome in the individual case was dependent upon many factors, including the age of the patient, the susceptibility of the strain of staphylococcus to penicillin, the site and nature of the primary infection, the duration of the bacteremia, the presence and location of secondary or metastatic abscesses, the accessibility of the primary or secondary infections to surgical drainage, and the presence of other associated and complicating diseases.

CARBUNCLES

Sulfonamide therapy has been rather disappointing in the treatment of carbuncles because of the natural resistance of the hemolytic staphylococcus aureus. The marked effect of penicillin on the management of carbuncles is clearly shown in a group of fifty-four cases which were treated with penicillin between February 1944 and February 1946, eight of which received both penicillin and sulfadiazine. The dosage employed was from 15,000 to 20,000 units every three hours given intramuscularly in each instance but one in which it was given intravenously. The average total dose was 970,000 units and the average duration of treatment was seven days.

Table 5. *Results of Penicillin Therapy*

1.	Spontaneous resolution	15 (27.7%)
2.	Partial resolution with necrosis	12 (22.2%)
3.	Abscess formation	24 (44.4%)
4.	Failure	1 (1.8%)

The results of treatment indicate that penicillin is obviously the chemotherapeutic agent of choice in this type of infection. When given early, in sufficient amounts, and over a long enough period of time, it brought the general and local invasive manifestations under control within a period of from forty-eight to seventy-two hours and so modified the subsequent course that both mortality and morbidity were reduced. In my experience, penicillin therapy was followed by complete and spontaneous resolution in 27.7 per cent of the cases, by partial resolution with centralized necrosis in 22.2 per cent of the cases, with partial resolution and abscess formation in 49.0 per cent of the cases and by failure in 2 per cent of the cases. Thus it was not

necessary to subject these patients to emergency total excision of the lesion in order to control this infection. Since the invasive qualities have been controlled so effectively with penicillin, more limited surgical procedures are recommended when indicated consisting of incision and drainage of abscess occurring during therapy and cruciate incision for the removal of necrotic tissue.

ACUTE HEMATOGENOUS OSTEOMYELITIS

Penicillin is a powerful and effective chemotherapeutic agent in the management of acute osteomyelitis, and it has greatly modified both its management and roentgenographic interpretation. In a group of sixty-four cases of acute hematogenous osteomyelitis treated with penicillin, the mortality rate was remarkably low, being 1.5 per cent. In general, the other results of penicillin therapy varied primarily with the time of diagnosis and the start of treatment.

When the correct diagnosis was made within the first two or three days, and adequate treatment was started immediately, the results were truly excellent, surgical intervention usually being unnecessary and abscess formation infrequent. After a period of from thirty-six to seventy-two hours, the fever, rapid pulse, bacteremia and other general signs of the severe infection began to disappear. At the end of a week the temperature was usually normal and the patient looked and felt quite well. The local signs of infection, such as tenderness, edema and redness, also began to recede after a similar latent period. During the next one to six months a series of roentgenographic changes occurred in the involved bone which were minimal, consisting of localized periosteal reaction or small areas of patchy decalcification of the underlying cortex, or both.

If the diagnosis and treatment with penicillin were moderately delayed for from four to seven days, the general and local manifestations of infection were brought under control by penicillin less promptly after a period of two, three or more days during which little or no clinical response was evident. Localized soft tissue abscesses occasionally developed and, when small, they were successfully treated by aspiration and local injections of a solution of penicillin. When large, surgical drainage by incision was necessary. After a week or more had elapsed, periosteal reaction and localized patchy demineralization of the underlying metaphysis became evident in the roentgenograms and increase in extent and degree, becoming most marked from one to five months after the onset of the infection. Recalcification of the demineralized areas followed with reestablishment of a more normal appearance of the bone. Sequestration occurred in this group infrequently.

When the diagnosis and treatment were delayed for from seven to ten or more days or when the infection was unusually severe, the local destruction of bone became very great and soft tissue abscess formation and sequestration occurred in most of the cases. The local infection was arrested with more difficulty in this type of case and longer periods of treatment with penicillin were usually required. Prolonged immobilization by cast in these cases seemed to be definitely indicated, and surgical intervention was usually necessary. The bony changes as revealed by serial roentgenograms at the start of penicillin treatment showed extensive bone destruction which increased on subsequent examinations. Sequestration occurred in most cases and, in many instances, the small sequestra gradually were absorbed spontaneously.

In a few cases of fulminating infections in which the patient would not live forty-eight or more hours to permit the maximum effect of penicillin, emergency surgical intervention after adequate preoperative preparations was necessary.

In general, the effects of penicillin included control of the generalized infection with sterilization of the blood stream, reduction of the mortality rate and decrease in the incidence of metastatic or secondary infectious complications. If metastatic complications, such as staphylococcal pneumonia, pleuritis, pericarditis or thrombophlebitis already existed, penicillin was a powerful chemotherapeutic agent aiding in their control as an adjunct to surgical or conservative treatment as indicated. Thus the morbidity also was decreased.

There seems to be little doubt but that adequate penicillin therapy can eliminate the necessity of emergency surgical intervention in most of the cases of early acute hematogenous osteomyelitis. It must be emphasized that early diagnosis can be made only on clinical grounds and that little or no help is to be expected from the roentgenograms for ten or more days. If there is any doubt as to the presence of an acute osteomyelitis, it is better to start penicillin therapy immediately rather than wait until the diagnosis is proven.

CHRONIC OSTEOMYELITIS

In chronic osteomyelitis the results were usually disappointing unless intensive preoperative penicillin therapy was used in conjunction with radical surgery. Spontaneous resolution of an acute exacerbation was noted in only nine instances. In the remainder surgery was necessary along with penicillin to clean up the local infective process.

AEROBIC HEMOLYTIC STREPTOCOCCAL INFECTION

While most of these infections responded promptly to sulfonamide therapy, penicillin was also very effective, and particularly valuable in those cases resistant to the sulfonamides. The results of penicillin therapy in ninety-four cases of hemolytic streptococcal infections, most of which were sulfonamide resistant, are summarized in table 6.

Table 6. *Aerobic Streptococcal Infections*
Results of Penicillin Therapy

		Results			
Clinical Diagnosis	*No. Cases*	*Excellent*	*Good*	*Questionable*	*Failure*
Septicemia	27	14	6	1	6
Cellulitis	19	14	5	..	..
Acute hematogenous osteomyelitis	3	2	1	..	..

Acute streptococcal gangrene	5	1	2	1	1
Meningitis	4	..	2	1	1
Empyema	3	..	2	..	1
Pericarditis	2	1	..	..	1
Peritonitis	3	1	2	..	..
Liver abscess	3	..	1	..	2
Acute mastoiditis with lateral sinus thrombosis	2	1	1	..	..
Septic abortion	23	19	2	2	..

In the treatment of anaerobic streptococcal infections, penicillin was far superior to the sulfonamides. In vitro studies showed penicillin bacteriostatic action under anaerobic conditions for the anaerobic streptococci to be far greater than that of the sulfonamides. In twenty-four cases of anaerobic streptococcal infections the results of treatment are shown in table 7.

Table 7. *Anaerobic Streptococcal Infection*
Results of Penicillin Therapy

		Results			
Clinical Diagnosis	*No. Cases*	*Excellent*	*Good*	*Questionable*	*Failure*
Bacteremia	6	2	1	1	2
Septic abortion	10	3	6	..	1
Chronic burrowing ulcer	6	..	3	3	..
Chronic progressive cutaneous gangrene	2	..	..	1	1

PNEUMOCOCCAL INFECTIONS

The average pneumococcal infections seen in surgical practice responded well to sulfonamide therapy in much the same manner as do the hemolytic streptococcal infections. Penicillin therapy was therefore reserved for those cases which were sulfonamide resistant, and the results obtained in seventy cases are shown in table 8.

Table 8. *Sulfonamide Resistant Pneumococcal Infections*
Results of Penicillin Therapy

		Results			
Clinical Diagnosis	*No. Cases*	*Excellent*	*Good*	*Questionable*	*Failure*
Bacteremia	33	20	4	..	9
Empyema	18	2	8	2	6
Meningitis	9	2	2	..	5
Arthritis	2	..	2	..	..
Pericarditis	1	..	..	..	1
Abscess of neck	4	1	3	..	..
Acute hematogenous osteomyelitis	1	1	..	..	..
Peritonitis	2	1	1	..	..

TETANUS

A clinical study of twenty-two cases of established generalized tetanus seen in and about Cincinnati has failed to show evidence of any beneficial effect of penicillin on the course of this disease. In addition, in vitro studies indicated that penicillin has no effect on the tetanus toxin. There was no obvious fall in the temperature or pulse rate as has been seen repeatedly in other infections susceptible to its action, no decrease in mortality or morbidity, nor any definite decrease in the severity, duration or frequency of the convulsive seizures which could be attributed to the action of penicillin. Exceptions were found in cases complicated by pneumonia or other secondary infections susceptible to penicillin in which the improvement that occurred was due to the effect of penicillin on the complicating infection and not on tetanus. The evidence indicates that the successful management of tetanus depends not on chemotherapy but on early diagnosis, adequate serotherapy for neutralization of free toxin, control of the convulsions and the administration of general supportive measures.

HUMAN BITE INFECTIONS

Once established, this type of infection has been controlled with considerable difficulty in the past. Its necrotizing, burrowing characteristics have resulted in prolonged morbidity, extensive septic necrosis of the tissue including bone, toxemia, impaired function, and even amputation. The results with penicillin therapy in nine cases have been very promising, and they indicate that penicillin is a valuable therapeutic agent for this condition, being superior to the sulfonamides. In five of the cases the response to parenteral penicillin therapy, rest, immobilization and elevation was excellent, the infection subsiding quickly and spontaneously with little evidence of residual infection or damage. The response was good in three other cases when penicillin was used in conjunction with incision and drainage, and questionable in the remaining infection.

RATBITE FEVER

Ratbite fever is essentially an invasive wound infection of two clinical types; Soduku caused by the Spirillum minus and septicemia form produced by Streptobacillus moniliformis. The endemic Japanese form, Soduku, has responded to arsenotherapy but no satisfactory form of treatment was known for the Streptobacillary type. The first four cases of ratbite fever caused by the Streptobacillus moniliformis which were treated with penicillin were studied at the Cincinnati General Hospital. The results of penicillin therapy in these four cases were excellent in three with sterilization of the blood stream, early fall in temperature and pulse, disappearance of rash and arthritis, and shortening of the course of the disease. In addition, studies in vitro indicated that penicillin has a powerful bacteriostatic effect on the Streptobacillus moniliformis.

GAS GANGRENE

Penicillin is by far the chemotherapeutic agent of choice in the treatment of gas gangrene. Conflicting evidence obtained from numerous experimental and clinical reports has resulted in confusion regarding the value and limitations of penicillin is gas gangrene. In a study of experimental gas gangrene, the therapeutic value of penicillin was determined carefully. Average doses had no measurable effect, but large doses corresponding to approximately 1,000,000 units given every three hours had a very definite effect, reducing the mortality, prolonging the life of the guinea pigs and localizing the lesions. Without surgery, however, discontinuation of penicillin was followed by prompt spread of the lesion and ultimate death. Similar studies showed streptomycin to have no significant therapeutic value. These experiments indicated clearly that penicillin in large doses is a valuable adjunct to adequate surgery in the treat-

ment of established gas gangrene since it limits the spread of the lesion, prolongs the period during which surgical decompression and excision of involved muscles can be done successfully, inhibits the secondary bacterial invaders and reduces mortality. In twelve cases of clinical gas gangrene, the use of penicillin in conjunction with surgical decompression or amputation seemed to be of definite value in overcoming the invasive manifestations of the infections. If the diagnosis was made at an early stage while the gangrene was more or less localized and incipient, radical decompression of the involved fascial compartments by free longitudinal incisions and excision of the infected muscle usually resulted in the arrest of the process and the saving of the extremity. If the diagnosis was made late when the process was extensive and had caused irreversible gangrenous changes in the extremity implying loss of function of the limb, open amputation of the guillotine type or some modification became necessary. At the present time, it is inconceivable that any type of serotherapy or chemotherapy can replace good surgery in the treatment of gas gangrene. Recently I have seen three cases of severe gas gangrene which were treated by the indicated surgery and massive doses of penicillin consisting of 1,000,000 units every three hours with marked success.

ACTINOMYCOSIS

Penicillin has been much more effective than the sulfonamides in the treatment of actinomycosis, but in my experience it has been used most effectively in conjunction with sulfadiazine or sulfamerazine. Penicillin given in full doses over a prolonged period of at least four to eight weeks in association with sulfadiazine, which is continued under control for an additional four to six months, has given the best results. Very satisfactory results were obtained in the cervico-facial type, and other cases of both abdominal and thoracic actinomycosis have undergone arrest and rather spectacular regression under this management with progressive decrease in size and finally disappearance of the tumor masses, discharge and pain. Whether or not complete cures have been obtained remains to be seen.

STREPTOMYCIN THERAPY

In some respects, the clinical effectiveness of streptomycin has been rather disappointing. Infections caused by microorganisms susceptible to streptomycin occur much less frequently than infections caused by microorganisms susceptible to penicillin. In addition, certain disadvantages of streptomycin have become increasingly apparent. Many susceptible pathogens rapidly develop high degrees of resistance. Although the blood stream is cleared of bacteria satisfactorily, locally invasive, acute and walled off infections are more refractive and often respond poorly. Therefore successful streptomycin therapy depends upon the use of sufficiently large doses from the beginning to maintain a maximum effect and early surgical drainage of abscesses before the development of this resistance. In chronic infections, prolonged periods of administration are often necessary and may be associated with toxic effects, particularly on the eighth cranial nerve. If the physical factors predisposing or associated with chronic infections are not corrected, relapse or recurrence often occurs after cessation of streptomycin therapy, and subsequent courses of this chemotherapeutic agent may be of little or no effect.

The clinical indications for streptomycin therapy at the present time are shown in table 9.

Table 9. *Streptomycin Therapy*

Clinical Indications
Therapeutic
Tularemia
Bacteremias caused by gram negative bacilli
Meningitis caused by gram negative bacilli
H. influenzal infections
Urinary tract infections
Liver abscesses
Cholangitis
Bronchiectasis
Peritonitis
Mixed infections of wounds
Tuberculosis
Typhoid fever
Prophylactic
Oral use preoperatively
Supportive to surgery in contaminated field

The results of therapy in tularemia have been brilliant and relapses have been rare. Bacteremias caused by susceptible organisms respond well to adequate streptomycin therapy, but surgical damage of walled off foci or abscesses was usually necessary for complete response. Meningitis caused by H. influenzae, E. Coli or other susceptible gram-negative basilli have responded well to the combined intramuscular and intrathecal use of streptomycin. It has been of great immediate but often only temporary value in the management of urinary tract infections because of its high concentration developing in the urine. Sterilization of the urine often occurred within from twenty-four to forty-eight hours along with rapid clinical improvement. In many instances, however, reinfection followed cessation of treatment. Clinical results in cases of liver abscess, cholangitis or secondary peritonitis have been encouraging, but further experience is necessary for better evaluation. Early experience with streptomycin in tuberculosis indicated that it was of definite value. Patients with early exudative and hematogenous forms unquestionably have received some benefit from prolonged periods of therapy. Lesions of recent development promptly showed regression, but chronic areas with walled off and encapsulated lesions were not responsive. Further experience with longer periods of therapy and more cases is needed. Early results of therapy in typhoid fever were very discouraging, but more recently the combined oral and parenteral administration of streptomycin has given more promising results.

SUMMARY

It is evident that modern chemotherapy is very effective in the treatment of many infections commonly encountered in the practice of surgery. Penicillin is far superior to the sulfonamides in the

treatment of infections caused by the staphylococcus and it has been particularly useful in the cases of infection caused by sulfonamide resistant gonococci, hemolytic streptococci and pneumococci. It is also the chemotherapeutic agent of choice in gas gangrene, ratbite fever, actinomycosis, anaerobic streptococcal infections and human bite infections. The use of increasingly large doses of penicillin, permitted by its very low toxicity, is gradually extending the field of effective chemotherapy in other infections produced by less susceptible bacteria. Streptomycin has extended the field of usefulness of chemotherapy, although its own field of effectiveness has been more limited. The new agent, bacitracin, gives considerable promise but its evaluation awaits further clinical experimentation. Penicillin has been strikingly effective in diffuse or generalized staphylococcal infections which have been diagnosed and treated early with penicillin, with the exception of those caused by a resistant strain or those complicated by acute vegetative endocarditis. Although penicillin therapy has had a striking beneficial effect on mortality and morbidity of suppurating infections, the fundamental surgical principles of early accurate diagnosis, early treatment, rest, adequate external drainage, correction of altered physiology and vigilant supportive treatment remain as important as ever.

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PRESERVED CARTILAGE IS SUCCESSFULLY USED IN PLASTIC SURGERY OF EYE

Preserved cartilage is preferable to fresh cartilage in plastic surgery of the eye, writes Sidney A. Fox, M.D., New York, in the current issue of *Archives of Ophthalmology*, published by the American Medical Association.

In most types of modern restorative surgery a graft of cartilage is taken from the patient's own rib to be used in repairing the injured part. The use of preserved cartilage in plastic surgery has been revived only recently, Dr. Fox states. It has been used most extensively in reconstructions of the nose, ear, forehead, chin and other facial structures. However, he reports that he has used it in 17 cases of plastic surgery of the eye—with uniformly good results.

In four cases the preserved cartilage was used as a substitute for the firm framework of connective tissue which gives shape to the eyelid, in reconstructing and repairing the lid. In four cases it was used to repair the bony contours around the eye-socket after fracture and deformity. In five cases it was used to raise the contents of the eye-socket after fracture of its bony floor. In the remaining four cases it was used to fill in abnormal cavities in the empty socket caused by fracture. Dr. Fox followed all of these cases for at least six months, and noticed no change in the grafts. There were no infections.

The chief advantages of using preserved rather than fresh cartilage, according to Dr. Fox, are four: (1) autopsy material is easily obtained and under proper conditions may be kept for as long as two years; (2) any problems associated with obtaining rib cartilage from the patient before the main operation are eliminated; (3) the period of hospitalization and discomfort is shortened; (4) grafts taken from persons other than the patient show less tendency to bend or curve than grafts taken from their own bodies; they heal with firmer union with the surrounding tissues and resist infection better.

CHEMOTHERAPY IN MEDICAL CONDITIONS

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Recent advances in the field of chemotherapy have made available antibacterial agents which are exceedingly effective against many of the infectious diseases. These advances in medicine have increased the importance of the early and accurate diagnosis of infectious diseases, for the selection of the most effective chemotherapeutic agent is dependent on an accurate clinical and bacteriologic diagnosis. Each of the antibacterial agents is effective against certain specific diseases and ineffective against others. The effectiveness of all of these agents is dependent on their use early in the course of the disease. Occasionally the diagnosis can be made on the clinical findings alone. More often, however, bacteriologic studies are necessary to establish the exact diagnosis and a clinical bacteriologist can give valuable assistance.

The correct choice of an antibacterial agent to be used in a specific disease requires a thorough knowledge of the clinical uses, limitations and toxicity of each agent. Antibacterial agents commonly used in the treatment of infectious diseases include the sulfonamides, particularly sulfathiazole, sulfadiazine and sulfamerazine, and the antibiotic agents penicillin and streptomycin. Other chemicals used in the treatment of infectious diseases include the antimalarial drugs, such as quinacrine hydrochloride (atabrine), and the antispirochetal drugs, such as arsphenamine. Potassium iodide, para-aminobenzoic acid and several other chemicals are used in the treatment of certain specific infections. A detailed discussion of each of these drugs is beyond the scope of this paper. However, a brief summary of the clinical uses of certain of these antibacterial agents in medical practice may help to clarify a rather confused subject.

SULFONAMIDES

The effectiveness of the sulfonamide compounds in the treatment of certain infectious diseases is well established. In some of these diseases the sulfonamides appear to be more effective than the antibiotic agents now available. In some infections, moreover, it appears wise to use a sulfonamide in addition to one of the antibiotic agents. Combinations of two or more sulfonamides have been reported as maintaining the therapeutic effectiveness of the individual drugs while diminishing the incidence of renal complications.[1, 2] The organisms which are often susceptible to the action of the sulfonamides are listed in table 1.

Table 1. *Antibacterial action of sulfonamides*

Organisms Usually Sensitive to Sulfonamides
Streptococcus pyogenes
Neisseria intracellularis
Diplococcus pneumoniae

Presented at the 89th Annual Session of the Missouri State Medical Association, Kansas City, March 30-April 2, 1947.
From the Division of Medicine, Mayo Clinic, Rochester, Minn.

Neisseria gonorrhoeae
Hemophilus influenzae
Shigella
Escherichia coli
Proteus vulgaris

Acute Bacterial Meningitis.—In the treatment of certain types of acute bacterial meningitis the sulfonamides are generally preferred to other available drugs. Sulfadiazine and sulfamerazine diffuse well into the cerebrospinal fluid after oral administration. The mortality rates in meningococcic and hemolytic streptococcic meningitis have been reduced significantly by these drugs. In those patients who do not respond to the sulfonamides within twenty-four hours or in critically ill patients penicillin should be given both intramuscularly and intrathecally in addition to the sulfonamides. In some cases of pneumococcic and staphylococcic meningitis, it appears advisable to use both penicillin and the sulfonamides during the entire course of treatment. If patients seriously ill with influenzal meningitis do not respond rapidly to streptomycin, sulfonamides and perhaps rabbit antiserum should be used as well.

Bacillary Dysentery.—Most authorities feel that the sulfonamides are effective in the treatment of bacillary dysentery if they are given early in the course of the disease. At the present time sulfadiazine or sulfamerazine appears to be superior to the other available therapeutic agents. In some cases it may be wise to give one of the sulfonamides which is poorly absorbed, such as succinyl-sulfathiazole (sulfasuxidine), in addition to the sulfadiazine or sulfamerazine.

Bacteriemia.—In bacteriemia due to a variety of organisms the sulfonamides are often effective, and their use should be considered if the organisms are resistant to the antibiotic agents. At times in the treatment of bacteriemia the simultaneous use of the sulfonamides and an antibiotic agent appears justified. Sulfadiazine and sulfamerazine should be given in doses sufficient to produce blood levels between 15 and 20 mg. per 100 cc. of blood.

Infections of the Urinary Tract.—Small doses of sulfathiazole or sulfadiazine are often very effective in eradicating sensitive organisms from the urinary tract. Infections of the urinary tract due to hemolytic streptococci, Escherichia coli and Proteus vulgaris often respond satisfactorily to sulfathiazole in doses of 7½ grains (0.5 gm.) four times daily. Occasionally infections of the urinary tract due to other organisms respond well also.

Pneumonia.—If patients suffering from pneumonia caused by pneumococci or streptococci do not respond to treatment with penicillin within forty-eight hours, the use of the sulmonamides should be considered. Doses of sulfadiazine or sulfamerazine sufficient to obtain a blood level of 10 mg. per 100 cc. of blood should be given. The sulfonamides have not been found to be of value in the treatment of primary atypical or virus pneumonia.

Brucellosis.—In some patients suffering from acute brucellosis, particularly those in whom there is bacteriemia, the sulfonamides appear to be of value.[3] In some of these patients the sulfonamides appear to induce a remission of symptoms and a return of the temperature to normal. If the sulfonamides are to be used in the treatment of this disease, blood levels of at least 10 mg. per 100 cc. should be maintained for from ten to fourteen days. In experience at the Mayo Clinic the sulfonamides have not been of value in the treatment of chronic brucellosis.

Miscellaneous Infections.—Several other types of infections due to the beta hemolytic streptococci and some due to Staphylococcus aureus often respond well to treatment with the sulfonamides.

Trachoma, conjunctivitis, lymphopathia venereum and chancroid also may respond to treatment with the sulfonamides.

Prophylaxis.—Sulfadiazine has been used extensively for prophylaxis against infections caused by the hemolytic streptococci.[4] The wisdom of such prophylaxis among large populations has been questioned. However, there appears to be a general agreement that in patients who have had an attack of rheumatic fever sulfadiazine should be administered prophylactically over a period of several years. Studies have indicated that such a program will prevent the recurrence of rheumatic fever in more than 50 per cent of the cases.

Toxicity.—Some of the toxic reactions caused by the sulfonamides are dangerous and many deaths have resulted. The indiscriminate use of the sulfonamides is to be severely condemned.

PENICILLIN

Penicillin has become one of the most important agents used in the treatment of infectious diseases. Its effectiveness in the treatment of certain of these diseases far surpasses the effectiveness of other available therapeutic agents.[5, 6] However, one of the essential requirements for successful treatment of bacterial infections with penicillin is to limit its use to infections due to those pathogens which are known to be susceptible to its use. These susceptible organisms are listed in table 2.

Table 2. *Antibacterial action of penicillin*

Organisms Sensitive to Penicillin
Diplococcus pneumoniae
Streptococcus pyogenes
Streptococcus salivarius
Micro-aerophilic streptococci
Staphylococcus aureus
Staphylococcus albus (some strains)
Neisseria gonorrhoeae
Neisseria intracellularis
Actinomyces bovis
Bacillus anthracis
Bacillus subtilis
Clostridium botulinum
Clostridium tetani
Clostridium perfringens (welchii)
Corynebacterium diphtheriae
Clostridium septicum
Micrococci
Streptobacillus moniliformis
Borrelia novyi (spirochete of relapsing fever)
Treponema pallidum
Leptospira icterohaemorrhagiae
Spirillum minus
Psittacosis virus
Ornithosis virus

Bacteriemia.—Bacteriemia due to susceptible organisms responds well to treatment with penicillin, providing foci of infection can also be elim-

inated. Early diagnosis and treatment of bacteriemia are essential if desirable results are to be obtained.

Subacute Bacterial Endocarditis.—One of the most gratifying advances in the practice of medicine has been the satisfactory response of many patients suffering from subacute bacterial endocarditis to treatment with penicillin. Adequate dosage is of great importance in the treatment of these patients. Doses of penicillin ranging up to 10,000,000 units per day and more have been necessary at times to eradicate the infecting organism. The intramuscular method of administration may be used in many cases, but in some the continuous intravenous drip method appears to give superior results.

Meningitis.—Meningitis caused by staphylococci and pneumococci should be treated with penicillin. Many authorities believe that the use of the sulfonamides in addition to penicillin is advisable. All patients who have meningococcal or streptococcal meningitis which does not respond to sulfonamides should be treated with penicillin.

Infections of the Middle Ear.—Otitis media and mastoiditis due to sensitive organisms often respond well to penicillin. Even when these conditions are complicated by those of intracranial extension, such as meningitis or sinus thrombosis, the response may be satisfactory.

Pneumonia.—Small doses of penicillin are often sufficient to control mild attacks of pneumonia. Severely ill patients may need large doses. If no improvement occurs within forty-eight hours, or if the patient is critically ill, one of the sulfonamides or antipneumococcal serum may be used simultaneously. Penicillin usually is effective in preventing the development of complications such as empyema or pulmonary abscess. Even when these complications occur, they often respond to further treatment with penicillin.

Infections of the Genito-urinary System.—In patients with urinary infections which do not respond to sulfonamide therapy, penicillin may be effective. Infections due to susceptible organisms, such as Staphylococcus aureus, usually respond satisfactorily. Results otherwise usually are disappointing because of the ineffectiveness of penicillin against most gram-negative organisms. Penicillin has been extremely effective in the treatment of gonorrheal infections of the genito-urinary tract.

Infections of the Skin and Soft Tissues.—Furuncles, carbuncles and extensive cellulitis have responded satisfactorily to penicillin. Use of this antibiotic agent systemically, rather than locally, is preferred by most authorities.

Miscellaneous Infections.—Penicillin in the treatment of osteomyelitis, peritonitis and syphilis will be discussed in other papers.

Patients suffering from Vincent's infection, anthrax, rat bite fever and psittacosis have responded well to treatment with penicillin.

Prophylaxis.—In patients who have rheumatic or congenital heart disease, penicillin should be used preoperatively and postoperatively to protect the patients, if possible, against the hematogenous dissemination of bacteria and the subsequent development of subacute bacterial endocarditis. The prophylactic use of penicillin otherwise is seldom indicated.

Toxicity.—Although penicillin is relatively nontoxic, patients do become rather easily sensitized to it. These sensitization reactions, such as exfoliative dermatitis, may be serious. It is important, therefore, to refrain from using penicillin indiscriminately in the treatment of conditions in which use of the drug is not entirely necessary.

STREPTOMYCIN

Streptomycin does not have the wide range of usefulness which penicillin has. Its effectiveness has been proved in only a limited number of infections. The promiscuous use of streptomycin, therefore, not only will be costly but may be definitely contraindicated. However, although the usefulness of streptomycin is limited, it is still an important drug for it has a very marked, almost specific, effect in some types of infections.

Care must be used in the administration of this antibiotic substance for streptomycin has many peculiarities which penicillin does not possess. With few exceptions the degree of sensitivity of organisms to streptomycin as determined by in vitro studies can be used as an index of the probable effectiveness of streptomycin in the clinical field. Those organisms most important from the clinical standpoint are listed in table 3. The problem of variation in sensitivity of different strains of the same organism to the action of streptomycin is of considerable clinical importance. The ability of some strains and species of organisms to develop resistance to streptomycin rapidly in vitro has been demonstrated repeatedly.[7] Clinically a similar development of resistance appears to take place. The ability of bacteria to develop resistance to streptomycin is, of course, of great clinical importance. It appears essential that the bacteria be eradicated completely in the shortest possible time if satisfactory clinical results are to be obtained. This means the administration of large doses of streptomycin from the onset of treatment and the use of all other measures which will aid in eradicating the infecting organism rapidly.

Table 3. *Antibacterial action of streptomycin*

Organisms Sensitive to Streptomycin
Escherichia coli
Eberthella typhosa
Salmonella paratyphi
Salmonella enteritidis
Shigella dysenteriae
Proteus vulgaris
Aerobacter aerogenes
Pseudomonas aeruginosa (Bacillus pyocyaneus)
Klebsiella pneumoniae
Hemophilus influenzae
Hemophilus pertussis
Staphylococcus aureus (some strains)
Mycobacterium tuberculosis
Brucella melitensis
Brucella abortus
Brucella suis
Pasteurella tularensis
Pasteurella pestis

It appears well established that streptomycin is superior to other available therapeutic agents in the treatment of certain diseases.[8-10]

Tularemia.—Reports from many different investigators attest to the marked effect of streptomycin in the treatment of most patients who have tularemia. The morbidity and mortality from this disease is significantly decreased.

Meningitis.—Meningitis due to Hemophilus influenzae usually responds well to streptomycin. This antibiotic agent also should be considered in the treatment of meningitis due to other organisms which are sensitive to streptomycin.

Bacteriemia.—Bacteriemia due to certain gram-negative and gram-positive organisms responds well to treatment with streptomycin if the organism is of a sensitive strain. Streptomycin is often effective in the treatment of bacteriemia caused by organisms which are resistant to penicillin.

Infections of the Genito-urinary Tract.—Infections of the urinary tract due to certain susceptible gram-negative organisms respond well to treatment with streptomycin, but the results in the routine treatment of urinary infections with streptomycin are diasppointing. The best results appear to be obtained when the organism of infection is either Proteus ammoniae or Aerobacter aerogenes. Poor results usually are obtained when a foreign body or obstruction is present in the urinary tract. Streptomycin is most effective in alkaline urine.

Infections of the Respiratory Tract.—Encouraging results have been obtained in the treatment of some types of pulmonary disease with streptomycin. Pneumonitis, particularly that caused by Klebsiella pneumoniae or Hemophilus influenzae, may respond to treatment with streptomycin. Empyema due to sensitive organisms occasionally responds well.

Tuberculosis.—Evidence is accumulating which shows that streptomycin has a limited suppressive action on infections due to the tubercle bacillus.[10] In many cases of predominantly exudative tuberculosis of the lungs the immediate results have been satisfactory. Tuberculous lesions of the larynx and tracheobronchial tree usually have healed under treatment with streptomycin. Chronic draining sinus tracts may close within a few weeks after the administration of streptomycin is started. However, fatality rates continue high in cases of tuberculous meningitis and miliary tuberculosis in spite of treatment with streptomycin. In renal tuberculosis actual healing has been observed only rarely. The place of streptomycin in the treatment of tuberculosis has not been determined fully. However, it appears that it may be a useful adjunct when combined with standard methods of treatment.

Miscellaneous Infections.—Results in the treatment of other types of infections with streptomycin have been variable. A suppressive effect in some cases of acute brucellosis has been noted. However, there has been a recurrence of symptoms in most of these cases. No effect has been obtained in the treatment of chronic brucellosis. The results obtained to date in the treatment of typhoid and paratyphoid fever have been disappointing. Laboratory studies suggest that whooping cough may be susceptible to treatment with streptomycin.

Toxicity.—No serious uncontrollable toxic reactions have been encountered from the use of a streptomycin. However, irreversible neurotoxic effects on the eighth cranial nerve may occur if treatment with streptomycin is prolonged.

CONCLUSIONS

Recent advances in the field of chemotherapy have made available antibacterial agents which are exceedingly effective against many of the infectious diseases encountered in the practice of medicine. Each of the antibacterial agents is effective against certain specific diseases and ineffective against others. There are certain toxic manifestations which make these antibacterial agents not entirely innocuous. Therefore, care must be used in the choice of an antibacterial agent, and the indiscriminate use of such drugs is to be condemned.

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MEDICINE IS MOST POPULAR PROFESSION WITH GERMAN UNIVERSITY STUDENTS

More German university students want to take up medicine than any other profession, according to the Berlin correspondent of *The Journal of the American Medical Association,* writing in the October 18 issue of that publication. He states that this is particularly true in the American and Russian zones of occupation.

The number of registered medical students in the four zones is: American, 10,714; British, 6,430; French, 2,887; and Russian, 3,336 plus an unknown number from Rostock and Greifswald which do not give official figures.

At present, however, the writer reports that many universities do not admit first year medical students. The chief difficulties are (1) the destruction of many of the university buildings, institutes, clinics and laboratories; (2) a shortage of textbooks, with those of a generation ago often the best available sources of instruction; (3) lack of housing.

THE MEDICAL CARE OF THE VETERAN

ROBERT M. ZOLLINGER, M.D.
COLUMBUS, OHIO

The program of medical care for veterans, as carried out by the Veterans Administration, is one of the largest medical projects ever undertaken in this country. In July 1945 there were approximately 6,712,000 veterans in the United States. However, in the last year and a half this number has increased until in January 1947 there were 18,277,000 veterans, or approximately 15 per cent of the entire population can be classified as veterans. These

Table 1. *Veteran Population.*

	July 1945	January 1947
World War II	2,688,000	14,341,000
Other Wars	4,024,000	3,936,000
Total	6,712,000	18,277,000

individuals have had or may have some type of contact with the Veterans Administration. Approximately three fourths are veterans of World War II and one fourth of World War I or previous wars. In other words, the Veterans Administration has had to expand in the short period of a year and a half to a capacity which would assure care for all the problems associated with almost 12,000,000 additional veterans.

The medical profession has become accustomed to thinking only of the medical problems associated with the Veterans Administration. Actually, this is a relatively small part of the program since provision must be made to handle insurance, claims for pensions, educational benefits and such by the millions. Every effort has been made to streamline the paper work as far as medical care of the veteran goes. When consideration is given to the fact that the medical aspects of the care of the veteran may have a direct bearing on many of the other divisions of the Veterans Administration, it is readily understood why it it is necessary to have accurate records of all types of medical care given to the individual veteran. It is obvious that complete tabulation must be maintained, since such medical treatment and care, of any type, may be related to the individual's application for pensions or insurance at a later date.

The Director of the Veterans Administration, General Bradley, and the Chief Medical Director of the Veterans Administration, Major General Paul Hawley, have insisted from the very beginning that the medical program for the care of the veteran be organized on a high professional level. General Hawley repeatedly has emphasized that the care of the individual patient comes first and that the Veterans Administration should have a medical service second to none. General Hawley was able to accomplish this goal when he was Chief Surgeon in the European Theater of Operations, and those of us who have had an opportunity to observe the progress that has been made in the Veterans Administration during the last year and a half feel that he is well on his way to accomplish a similar goal in the care of the veteran.

It was obvious, because of the tremendous increase in the number of veterans, that such a program could not be carried out efficiently from a central office in Washington. Accordingly, the Administrator set out to effect a decentralization. The United States has been subdivided into thirteen areas which correspond roughly to the Army Service Commands. The size of these areas depends upon the density of the population and the proportionate number of hospital beds and other types of services that probably would be required by veterans. The work in the Central Office in Washington gradually has been decentralized among these thirteen areas, each of which has a deputy administrator and a deputy medical director in addition to the other necessary full time personnel. Many of the difficulties which have been encountered in the past are rapidly being overcome as these branch areas have become fully operative. It takes time to acquire the necessary personnel as well as office space to institute such an undertaking. Although from an operative point of view the medical section may appear to be relatively small, it does assume great importance in the minds of the veterans, their families and their communities. It must be remembered that practically every other home, even in small isolated communities, has some member of the household who may desire contact with the Veterans Administration. It is necessary, therefore, that the Veterans Administration have a network of offices and personnel scattered throughout the country which must be as efficient and almost as available as our postal system.

The Chief Medical Director is not only anxious that the medical care given to the veteran at the present time be the best available but he is working to the end that modern professional care of the highest possible caliber be maintained in the years to come. It is his feeling that this would be better accomplished by three major methods. In the first place, opportunity for full time work in the Veterans Administration should be so attractive that highly trained men would be encouraged to enter the service. Secondly, assurance should be given that the medical section of the Veterans Administration will not become isolated but keep abreast of modern, up-to-date civilian practice. It would appear that this could be accomplished by the appointment of civilian consultants who would be given part time appointments in the Veterans Administration. By using these consultants and by working out state medical plans for the care of the veteran it would be assured that the medical department of the Veterans Administration would no longer be isolated. In the third place, it was decided that new hospitals, insofar as possible, would be erected near medical schools in order to benefit from the actual participation of the medical school

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in the professional care of the patient. Furthermore, veterans with service connected disabilities could be hospitalized in civilian hospitals rather than the Veterans Administration taking over isolated hospitals which had been utilized by the armed forces. Many of the former were so far away from medical centers that it would be impossible to staff such institutions by specialists on a part time basis. All of these principles have been put into effect and have undoubtedly resulted in better care for the veteran.

A great deal of attention, therefore, has been directed toward the organization for the professional care of patients. A special medical advisory group has been appointed, composed of representatives from the various specialty boards and from the senior medical societies in this country. This group will meet at intervals with the Chief Medical Director to advise him in matters of policy involving the professional care of patients as it relates to their special field. In addition, there are two other divisions in the Central Office, namely, the Research and Educational Division and the Professional Service Division, which are both advisory and operative.

The Chief Medical Officer has set up a Professional Service Division in the Central Office where the various specialties are represented. The members of this division are recognized specialists in their respective fields who meet in Washington from time to time to assist in the formulation of professional policies. Many of these men have had long and distinguished careers in the Army or Navy as consultants and understand the problems of the veteran. This group has been concerned primarily with the introduction of current high standards of practice in the care of patients in all specialties. They have been active in recruiting highly trained professional personnel who enter the Veterans Administration for full time work. One of their initial duties was to appoint a similar group of specialists to serve in each of the thirteen branch offices throughout the country. The members of the Professional Service Division in each of the branches visit the hospitals in their area making rounds in their particular specialty. They evaluate the professional care of the patients and submit recommendations plus a report of their findings.

The variety of medical and surgical problems associated with the return of veterans of World War II has made it necessary to organize centers for specialized treatment. It is for this reason that the various specialties, such as plastic surgery, neurosurgery, thoracic surgery, allergy, tropical disease, audiology, rehabilitation, gynecology, roentgenology, have representatives in the Professional Service Division. The members of the Professional Service Division have assisted the Chief Medical Director in developing special centers for treatment and have made recommendations concerning the staffing of such centers by qualified specialists.

The Research and Educational Division has obtained the cooperation of medical schools in the professional care of patients in those hospitals which are close to medical centers. In this way, the care of the veteran will be improved as a result of the medical school or medical center supplying, on a part time basis, the best trained men obtainable in the civilian practice of medicine. Almost all the medical schools have signified their intention to cooperate in this venture. Many hospitals planned for future construction will be erected near medical schools so that they can come under the same plan. The cooperating medical schools have appointed Deans Committees which have been responsible for appointing a senior consultant in each of the various specialties, a part time attending staff and residents for the Veterans Administration hospitals with which they are affiliated. This will permit the best trained men available in civilian practice of medicine to devote a portion of their time to veteran hospitals and yet direct their major effort to their private practice and teaching responsibilities. This should go a long way in preventing the isolation of the medical department of the Veterans Administration and provide for a constant blending of civilian standards of practice with those of the Veterans Administration.

The senior consultant in any particular specialty will truly act as a consultant in difficult cases, make ward rounds, and assure the Deans Committee that the caliber of the service is consistent with their high standards and that recognition should be sought from the various specialty boards and the College of Surgeons. Provisional recognition already has been given to many services of the Veterans Administration by these reviewing authorities. These services are proving of great assistance in providing positions for approved resident training in the various specialties. The senior consultant is paid on a visit basis.

A part time attending staff has been appointed whose duties are those of any junior attending physician in a University Hospital. The number of such men appointed depends upon the needs of any particular hospital. It is desirable that these men be World War II veterans and that they be certified as specialists so that the hospital will continue to be recognized for resident training. These men likewise are paid on a visit basis not to exceed $500.00 per month or $6,000 per year. The Deans Committee makes these appointments and submits them to the Veterans Administration for approval.

. In non-affiliated hospitals, the Professional Service Division of the branch office will serve in a similar capacity to the Deans Committee and their recommendations are presented to the Branch Medical Director for consideration. By this plan, men of high professional qualifications will visit the services of both the affiliated and the non-affiliated hospitals on a part time basis and thus assure a high professional standard of practice. Their efforts will complement those of the full time staff.

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Research in the Service of Medicine

ation with medical schools is the provision for the training of residents. Not only does Public Law No. 293 aid the returning veteran doctor in becoming established, but it makes provision for residents in veterans hospitals who desire further training leading to certification as a specialist. There is a need for additional facilities for the training of residents in this country. A great number of the young veteran doctors are anxious to get more work to refresh themselves before going into practice, or else to get sufficient training to become certified as specialists. Certainly the medical schools as well as other medical centers are unable to provide enough places to train all the men who desire such training or who actually may be required for the country at large. At the present time, there are over 1,500 residents on duty in the various Veterans Administration hospitals throughout the country. There are an additional 155 full time

Table 2. *Veterans Administration Residency Program, February 1947.*

Resident on duty	1,542
Full time resident trainees	155
Vacancies for residency	445

physicians who are assigned to the resident training program. These young men will be paid on a scale in accordance with those being used for residents in other hospitals in the community with additional allowances for board and room. This provision is necessary because the present veterans hospitals have no living quarters for the resident staff. It is hoped that living quarters for residents will be provided in the new hospitals. It is obvious that these young men will stimulate the staff and contribute both directly and indirectly to improved care for the veteran which is the immediate as well as the ultimate goal.

The lack of professional personnel was one of the major problems facing the Chief Medical Director during the early days of reorganization. Actually, in January 1946 there were only 668 doctors working full time for the Veterans Administration. As

Table 3. *Veterans Administration, Professional Personnel.*

	Doctors	Dentists	Nurses
January 3, 1946	668	233	5,200
February 3, 1947	5,753	890	10,411

of February 1947 the number has been increased by over 5,000 and at the present time there are approximately 5,753 physicians working full time for the Veterans Administration. The plan of the Chief Medical Director to make full time work in the Veterans Administration attractive to highly trained professional personnel obviously has been successful. The number of dentists has increased from 233 to 890. There were 5,200 nurses in the Veterans Administration in January 1946 and this number has been increased to 10,411 in February 1947.

It has been the experience of the Veterans Administration that quite a number of well trained veteran physicians have investigated the possibility of working for the Veterans Administration because of the good opportunity it affords. As a matter of fact, there is a total of 171 men in the surgical specialties who have been certified by their respective boards, with fifty-six additional physicians certified but not identified by a specialty, making a total of 227 certified physicians. There is a corresponding number of qualified specialists in the divisions of medicine, tuberculosis and neuropsychiatry. Such qualified men not only assure a high type of care for the veteran, but assist in the training of other full time workers and residents. Much progress has been made, therefore, not only in the number but in the quality of professional assistants which have been added to the Veterans Administration.

As one would expect, the existing hospital facilities have been inadequate in certain areas to handle the tremendous increase in the number of veterans. In general, the hospitals in the Veterans Administration have been of three types: Those devoted to the treatment of tuberculosis, those which specialize in neuropsychiatry and the general medical and surgical hospitals. In addition, there are homes to provide domiciliary care. In January 1946 there were approximately ninety-nine veteran hospitals in this country and this number has been increased to 123 as of February 5, 1947. Seventy-four of these are listed as general

Table 4. *Veterans Administration Hospitals and Homes, February 1947.*

1. Functioning Hospitals	123
2. Homes	13
3. New Hospitals Approved	75
4. Additions to Hospitals Approved	48

medical and surgical hospitals, seventeen for the treatment of tuberculosis, and thirty-two devoted to the treatment of neuropsychiatric conditions. Recently another Veterans Administration home has been opened in Wadsworth, Kansas, bringing the total to thirteen.

The hospital bed capacity of the Veterans Administration must be greatly increased to care for the increasing number of veterans who have been discharged and will continue to be discharged from the various services. Furthermore, it must be remembered that the peak load of patients will be gradually reached in the years ahead. There have been three chief sources for bed expansion. The immediate gain in bad capacity has, of course, been made possible by taking over hospitals which have been given up by the armed forces. However, it has been the policy of the Chief Medical Director not to use isolated hospitals which were vacated by the armed forces unless they were close enough to medical centers to be staffed by specialists on a part time basis. Another source of obtaining beds has been through contacts with the state medical societies and through contracts to care for veterans in certain government hospitals. The major source of beds in the future will result from the construction of new hospitals, or additions to hospitals from funds already allocated. Actually, funds have been appropriated and the type, capacity, and general location of seventy-five new hospitals have been ap-

proved. Also, funds have been appropriated and the type, capacity and general location approved for additions to forty-eight existing hospitals. Some construction has been assigned to the Corps of Engineers. A limited amount of construction has been done, however, due to the high cost of all types of building at the present time.

In January 1947 there were approximately 102,255 beds available in Veterans Administration hospitals. At the same time, there were 104,748 Veterans Administration patients. Of those patients hospitalized, 34,710 had service-connected disabilities, while almost twice that number (70,038) were hospitalized for non-service-connected disabilities. Optimum hospital care is generally considered to be provided when the number of patients is about 85 per cent of the available bed capacity; patients in Veterans Administration hospitals continue to number about 90 per cent of the available bed capacity.

Table 5. *Veterans Administration, January 1947.*

1. V. A. Hospital Beds	102,255*
2. Patients Hospitalized	104,748
a. 34,710 service-connected	
b. 70,038 non-service-connected	

*90% occupancy

According to the statistics available in December 1946, there were over 12,000 veterans hospitalized in non-Veterans Administration hospitals as compared to more than 81,000 in Veterans Administration hospitals. More than one half of the patients hospitalized (54 per cent) were in hospitals devoted to neuropsychiatric treatment. Slightly more than one third (36 per cent- of the patients were classed as requiring care either in general medicine or surgery, and approximately 10 per cent were hospitalized for the treatment of tuberculosis. It is rather surprising to most physicians to find that such a low percentage of the patients in the Veterans Administration require general medical or surgical care. There are nearly 18,000 beds available at the present time for the surgical specialties in the general medical and surgical hospitals.

Table 6. *Veterans Administration Patients in Hospitals, December 1946.*

Disorder	Non V. A.	123 V. A.
T. B. (10%)	2,191	7,339
N. P. (54%)	1,447	48,790
G. M. & S. (36%)	8,780	24,921
Total	12,418	81,050

In December 1946, there were 13,498 veterans receiving domiciliary care in the Veterans Administration homes. Seven hundred twenty four of these were veterans of World War II. There are, at the present time, more than 15,000 beds available in these homes.

The number of applications for hospital or domiciliary care received during January 1947 reached an all time high of more than 81,000. Dispositions of applications almost kept pace with receipts, exceeding 80,000 for January. The administrative procedure for handling these applications has now been developed to the point at which dispositions are able to keep pace with fluctuations in receipts. It appears that the normal pending load at the end of a month represents approximately three days work or about 10,000 applications at the current disposition rate. In January 1947, there were 22,214 veterans awaiting hospital admission. About 75 per cent of the total were veterans of World War II. It is significant that only 60 veterans out of this entire number are listed as having service-connected disabilities. (Chart 7.) (Slide 12.)

Table 7. *Veterans Awaiting Hospital Admission, January 1947.*

Service-connected	60
Non-service-connected	22,154
Total	22,214

75% veterans of World War II

During the last six months of 1946, there was an average monthly discharge of patients from both Veterans Administration hospitals and non-Veterans Administration hospitals of approximately 40,000 per month. This number exceeded the monthly average for January to June, 1946, by about 8,000. Of the total number of discharges in December 1946, 19 per cent had service-connected disorders. Some insight into the possible patient load for the future may be gained from figures which show the great preponderance of veterans with non-service-connected disability who receive treatments, compared to those having service-connected disabilities. Since this trend must be planned for in the future, the need for more hospital beds is obvious for the care of the millions of veterans of World War II.

One of the major problems in the Veterans Administration has been the tremendous load of outpatient examinations and treatment. Better administrative organization combined with the assistance of the state medical societies has enabled the Veterans Administration to reduce the backlog of requests for physical examinations. For example, in January 1947, there were 222,116 individuals treated as outpatients. This group received a total of 532,974 treatments. This is exclusive of dental examinations. As a matter of fact, 98,985 of the individuals receiving outpatient treatments were treated by fee basis physicians. Furthermore, during the same month there were 338,780 individuals examined as outpatients with a total of 690,891 examinations required. Here again the fee basis physicians examined 117,016 of these individuals. It is obvious that the treatments and number of examinations were only possible as a result of the great assistance given by the fee basis physicians working through the thirty-six state medical societies which have contracts with the Veterans Administration.

Table 8. *V. A.*—January 1947, Outpatient Treatments.*

Total	By Staff Physicians	By Fee Basis Physicians	Number of Treatments
222,116	123,131	98,985	532,974

V. A.—January 1947, Outpatient Examinations.*

Total	By Staff Physicians	By Fee Basis Physicians	Number of Treatment
338,780	221,764	117,016	690,891

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It should not be forgotten that a great number of physical examinations are requested every month for compensation or pension purposes. During recent months, the dispositions of requests for physical examinations has exceeded the number of requests received, thereby making further inroads into the impending load. In January 1947, there were 114,693, or an increase of 16 per cent over the number requesting physical examinations in December 1946. Dispositions over this same period total 114,367, but there remained a backlog of over 224,000 at the end of January. In terms of days work, this backlog represents about forty-three days. The management of these cases is being speeded up, however, and it is anticipated that this backlog will be substantially reduced within the coming months.

Since the responsibility of medical treatment of the veteran has become so widely diversified, it would be well to describe the medical services to which veterans are entitled. In the first place, under existing law, veterans who are discharged from service under honorable conditions are entitled to hospital care in veteran and other government hospitals, with which the Veterans Administration has an agreement, for the treatment of any disease or injury for which hospital care is indicated. Likewise, the veteran is entitled to outpatient treatment for any disease or injury which has occurred in the line of duty and which resulted in his discharge from service, and for the relief of any disease or injury which was incurred in or aggravated by the service. The veteran also may be hospitalized in private or contract hospitals for the treatment of service-connected disabilities, if government facilities are not available, or if their physical condition precludes travel to a veterans hospital. If the veteran has a non-service-connected disability due to injury or disease, and is capable of paying, he is not entitled to hospitalization or out-patient treatment. However, the male veteran having a non-service-connected disease or injury can be hospitalized in a veterans hospital or another government hospital with which the Veterans Administration has a contract, provided he makes a sworn statement that he is unable to pay. Some confusion has arisen on occasion because neither the physician nor the patient has realized that a veteran is not entitled to hospitalization at government expense in a civilian hospital for non-service-connected disability. This point has not been understood clearly by either doctors or veterans and has brought about considerable misunderstanding.

Table 9. *United States Veterans Administration: Medical Service to Which Veterans Are Entitled.*

	V. A.	Contract Gvt.	Contract Civil	V. A.	Contract
A. Service-Connected Disease or Injury Male and Female Veterans	+	+	+	+	+
B. Non-service-connected Disease or Injury	0	0	0	0	0
1. Ability to Pay Male and Female Veterans					
2. Sworn Statement Unable to Pay					
Male Veterans	+	+	0	0	0
Female Veterans	+	+	+	0	0

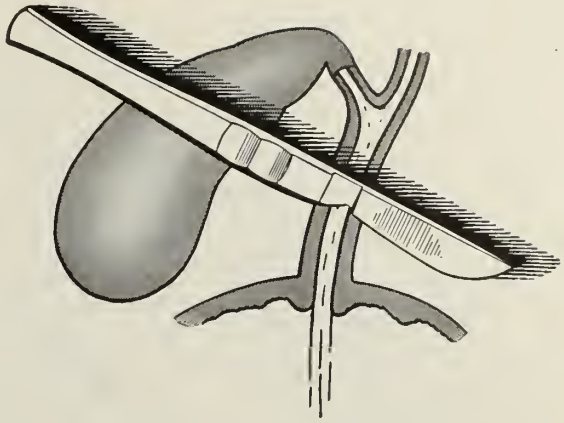
Although government hospitalization will be provided the male veteran for a non-service-connected disability, there is no provision for outpatient examination and treatment.

In the instance of a female veteran with a non-service-connected disease or injury, she may, in addition to being admitted to a veterans hospital, be admitted to a contract government or civilian hospital if she makes a sworn statement that she is unable to pay. She is not entitled, however, to outpatient treatment. The female veteran does, therefore, differ from the male veteran in that she can be admitted to a civilian hospital for a non-service-connected disability.

There are certain general principles that fee basis physicians operating under state medical care plans for the care of veterans should remember. In the first place, when there is any doubt in his mind regarding the procedure to follow in treatment of a veteran, he should consult the chief medical officer at the nearest regional or subregional office of the Veterans Administration. Some have complained about the paper work or "red tape," which is necessary. It should be remembered that the medical treatment or examination may have to be correlated with other departments of the Veterans Administration, i.e., pension, compensations and such. Moreover, the Veterans Administration believes taxpayers do not want them or any other government agency to spend taxpayers money except under conditions of rigid accountability.

Physicians dealing with the Veterans Administration are only with its Department of Medicine and Surgery. This department is not the agency which awards pensions and compensation, nor has it the power to establish service connection for diseases or injuries. This work is done by the adjudication division of the Claims Service through rating boards. Of the three rating specialists on a board, one is a physician and this physician is not a member of the Department of Medicine and Surgery. The only part played by a fee basis physician in connection with adjudicative procedures is to furnish rating boards with medical evidence required to adjudicate a veteran's claim. It will save the physicians and the Veterans Administration difficulty to abstain from informing the veteran of his medical findings.

Do not examine a veteran for pension or compensation unless authorized to do so. The authorization for examination sent will give the information as to the type of medical examination requested by the Veterans Administration. With the authorization for examination, all available medical information concerning the veteran will be forwarded. If, in a physician's professional judgment, other examinations such as roentgen ray, laboratory or specialists' examinations are required for a complete diagnosis of the case, authorization from the Veterans Administration for such examinations must be sent to that or another physician before the work can be done with expectation of reimbursement. At the time a physician is authorized to make an examination, the veteran also is advised



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to appear for examination. He should present a letter which will identify him and also verify authority for examination. It should be remembered that this authority is valid for only thirty days. If the veteran fails to report within this space of time, all correspondence and authorizations pertaining to the case should be returned to the Vetarans Administration office from which they came with the statement written across the face of the original authorization that the veteran did not report for examination. The report of this medical examination should be so written that the rating board gets a clear picture of the physician impressions of the case. The rating boards require detailed medical information such as will reflect a picture of functional impairment which can be translated into percentage estimate of the veterans capacity to earn a living. It is not so much the disease or injury that matters to the rating board as the rate of disability which is a result of the disease or injury. The physician's report should include an accurate diagnosis with identification of the disease or injury. The physical findings and record of subjective symptoms should support the diagnosis adequately. If the claimant or beneficiary, who is mentally competent, confuses or obstructs his examination, report of this action should be made to the authorizing office immediately. If malingering is suspected or detected, the examiner should give all his reasons or justification for such an opinion. All roentgen ray, laboratory and special examination reports should be made a part of the examination report.

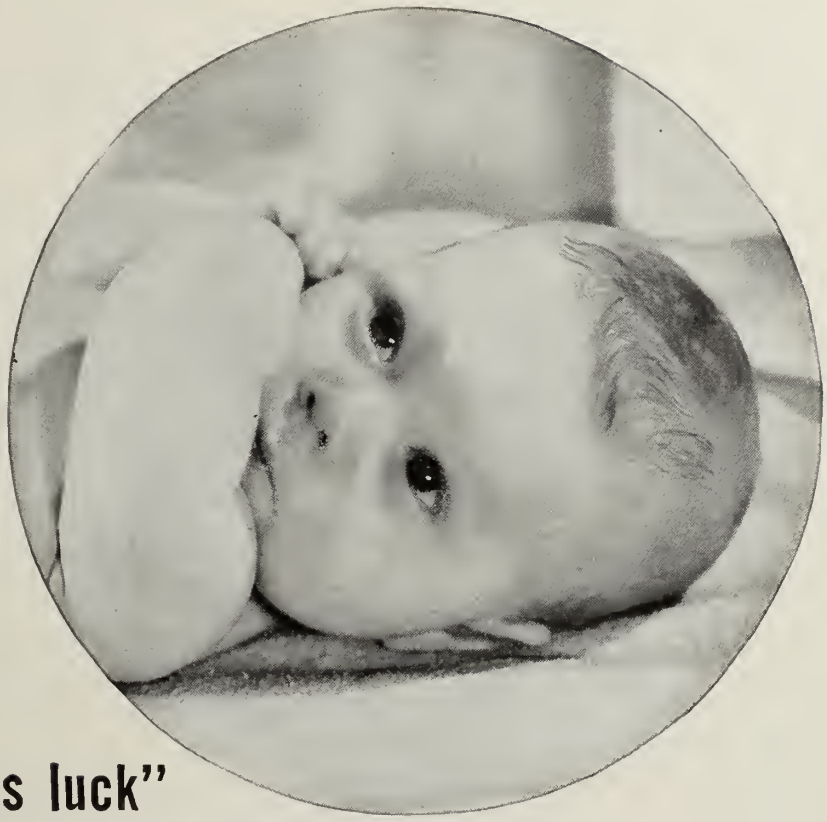
Outpatient treatments should not be given a veteran unless specifically authorized by the Veterans Administration, except in an emergency. Only veterans with service-connected disability are eligible for out-patient treatment. The authorities of the Veterans Administration are the only ones who can determine that point. If facilities for outpatient treatment are available in a Veterans Administration regional or subregional office clinic, in or near the community where the veteran lives, and there is no large backlog preventing him from getting treatment in a reasonable time, ordinarily the veteran will be sent to such a clinic. If a backlog exists at such a clinic, the veteran lives at a considerable distance from such facilities, when travel would be inadvisable because of his physical condition, when such a visit would cause excess loss of time from employment or when it is considered to be in the best interests of the veteran and the government, veterans may be sent for outpatient treatment to private fee basis physicians. The present tendency is to refer as many pension or compensation examinations as possible to regional offices and as many outpatient treatments as possible to private physicians.

If one accepts a veteran as a patient without authorization from the Veterans Administration, one is taking a chance on not being paid for his services by the Veterans Administration. If one give treatment in an emergency for a condition which is definitely not service-connected, such as acute appendicitis, the Veterans Administration will neither authorize treatment, nor reimburse for medical attention in such a case. Such a patient, even though non-service-connected, is, however, eligible for treatment in a Veterans Administration hospital if authorization can be obtained for admission and a bed is available. The only exception in which treatment is authorized on an outpatient basis for a non-service-connected disability, is in the instance of the veteran receiving training under Public Law No. 16. Such a veteran may be furnished any treatment necessary to prevent an interruption in his training, whether such treatment is indicated as service-connected or not.

The recent circular, No. 17, 1947, of the Veterans Administration tends to eliminate delay in rendering outpatient treatment or hospitalization pending adjudication of a claim. Under this circular, when a veteran requires outpatient treatment and has either filed a claim which has not been adjudicated or has not filed a claim at all, it is within the discretion of the Chief Medical Officer to determine whether the evidence presented by the veterans is or is not sufficient ground to justify immediate treatment pending adjudication. If it is ruled that the veteran is ineligible, payments will be made for unauthorized treatment by the fee basis physician up to the time of the decision, but not thereafter.

While ordinarily the veteran himself requests outpatient treatment on specific forms, the physician may request authority by telephone, telegraph or letter. It is urged that at least verbal authorization should be obtained before a patient is given initial treatment. Under normal circumstances, treatment can be authorized only to include the current calendar month. A final monthly report of treatment rendered for each veteran patient is requested and authority for continuing treatment into the succeeding month should be requested by the 23rd of the current month. This is to allow for sufficient time to get new authority for treatment before the first of the month in which one expects to give treatment.

The Veterans Administration hospital will be the first choice for all hospital treatment of a veteran. If the case is an emergency and it would be hazardous to the veteran patient's life or health to attempt to transport him to a Veterans Administration hospital, then he may be hospitalized and treated in a private hospital, if he is suffering from a service-connected disease or injury. If it is impractical to obtain authorization prior to hospitalization and treatment, such authority must be requested within seventy-two hours of the beginning of treatment. For this purpose, a collect telephone call or telegram may be used. It should be remembered that the Veterans Administration will not pay for private hospitalization and treatment by private physicians of male patients suffering from non-service-connected disability unless a Veterans Administration official has specifically authorized



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*Vital Statistics—Special Reports: Vol. 25, No. 12, National Office of Vital Statistics, Washington, D. C. (Oct. 15) 1946, p. 206.

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such care. Under such circumstances, if an emergency exists requiring hospitalization, one should communicate by telephone, if necessary, with the nearest Veterans Administration hospital and acquaint them with the facts of the case.

The regulations are less rigid for female veteran patients. Female veterans with service-connected or non-service-connected disabilities may be treated in private hospitals by private physicians (except in the case of normal pregnancy) if authorization has been obtained. If it is impossible to obtain authorization before beginning treatment, request for authorization should be made within forty-eight hours of beginning treatment. In such a case, one should keep in mind the possibility that the requested authorization may not be granted, and one may not be paid for his services.

There is no question but that the medical care of the veteran has been improved to an extent that would hardly be thought possible considering the magnitude of the program. All of the veteran hospitals have been visited by the various branch section chiefs who have turned in very extensive survey reports. As a matter of fact, almost 1,000 reports by civilian consultants have been sent into the Central Office within the last year. These reports from the Branch Section Chiefs have proven invaluable. They have judged the care of the veteran by the highest civilian standards and in general have reported constant improvement in all the hospitals in the professional care of the patients. These reports are given to the manager of the local hospital, the local Deans Committee and the Branch Medical Director as well as to the various men concerned in the Central Office. The Chief Medical Director frequently has expressed his satisfaction with the straight forward manner in which these men have evaluated the various Veterans Administration hospitals. This has made it possible to gain first hand information concerning the weak and the strong points, and has enabled the Veterans Administration to make the necessary improvements of the various hospitals.

Since there are approximately 300,000 female veterans who will become eligible for the benefits of the Veterans Administration, part time consultants as well as full time staff, which includes specialists in the diseases and disorders peculiar to women, have been appointed. The new hospitals which are under construction provide wards for female patients.

A great deal of progress has been made in the last year and a half in the development of specialized treatment centers. There are at the present time 137 specialized treatment centers which have been designated to cover the various surgical specialties. For example, there are now thirty-nine hospitals qualified to do neurosurgery in the Veterans Administration. Pneumonectomy and lobectomy can be carried out by experts in thirty-five institutions. Formerly there were only three or four hospitals where all tumor cases in the Veterans Administration were concentrated. These tumor centers were always heavily overcrowded and there was a long delay in some instances before patients with a malignancy could be transferred to these centers for treatment. As a result of the highly skilled full time personnel which has been added as well as the availability of local part time consultants, twenty-seven hospitals have now been designated as qualified to manage tumors which are generally considered to fall within the field of general surgery. More recently, twenty-two centers have been designated as plastic surgery centers. These centers will become increasingly busy as the patients requiring plastic surgery are discharged from the Army and Navy hospitals. Patients with paraplegia have been concentrated into seven centers in which specialized professional and nursing personnel are available and great progress has been made in the care of these individuals. Several centers have been designated also where the fenestration operation may be carried out and three centers have been designated for the study and treatment of traumatic epilepsy. There is no question but that these centers will result in improved care to the veteran and many contributions will be made in the study and treatment of these patients.

Table 10. *Veterans Administration, Progress in Surgery, Specialized Treatment Centers, 1947.*

Neurosurgery	39
Pneumonectory and Lobectomy	35
Tumor	27
Plastic Surgery	22
Paraplegia	7
Fenestration	4
Traumatic Epilepsy	3
Total	137

An intensive convalescent and rehabilitation program has been inaugurated for those patients for whom special attention should be provided. This group is comprised of those who are so seriously disabled that they require institutional care, yet may be able to do some productive work. Such centers will afford opportunities for rehabilitation of the mentally disabled as well as the physically disabled.

Furthermore, it must be remembered that approximately 16,000 veterans of World War II have had amputations. Plans have been carried out for the immediate care of these individuals and a great deal of research is being done to improve artificial appliances. The Veterans Administration will share with the Army and Navy in whatever benefits are produced by research which has been carried out under the supervision of The National Research Council.

It is only possible to mention a few of the many forms of progress which have taken place in the medical care of the veteran. Every aspect of hospital care has been studied and already many changes have been made and more will follow. The best procedures used in civilian hospitals constantly are being introduced into the veterans hospitals. Already the general improvement in the management of patients within the hospitals has resulted in a reduction of hospitalization from forty

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to twenty days. In other words, a 500 bed Veterans Administration hospital today has, in reality, the capacity that a 1,000 bed hospital had a few years ago.

The number of surgical procedures has increased tremendously. For example, there was a monthly average of 5,295 surgical procedures carried out in 1945, while in January 1947, in one month there were 12,342 surgical procedures. In these cases there was an overall mortality of less than 4 per cent, which certainly compares favorably with the highest type of civilian practice. No doubt many problems and difficulties will arise, but when one appreciates the magnitude of the program, this is understandable. Every effort is being made to avoid delays and to iron out the difficulties. In order to be effective, the program will require the active cooperation of members of the medical profession throughout the country and, from the response so far, there is every reason to believe that they will give this program their enthusiastic support.

It is our united purpose that the care given our veterans be the best that it is possible to obtain, both now and in the future, and that in years to come it will be consistent with the highest standards of civilian practice.

Ohio State University College of Medicine.

THE DEVELOPMENT OF THE VETERANS ADMINISTRATION RESIDENCY TRAINING PROGRAM

FRANKLIN E. WALTON, M.D.
ST. LOUIS

I choose to preface my remarks by the self evident fact that from the standpoint of all concerned the *patient always comes first.* All changes in policy are directed specifically toward this goal! This is merely repeating the dictum that the Medical Director, General Hawley, has presented to all physicians who are participating in any phase of the veterans' medical program. All have received this repeatedly in specific directives. General Hawley has never spoken but that he has emphasized this fact—the obvious goal of good and modern medicine. This same single thought has pervaded the every suggestion of the "Father of the Residency System in the Veterans Administration System," Dr. Paul Magnuson, and must rise up before him on occasions.

With this apologia, the subject presented at this time is perhaps the greatest single factor which will bring these specific conditions into clinical practice.

The development of the residency program in the Veterans Administration hospitals is the logical development of thoughtful minded administrators and medical educators who place the care of the patient above all else. A resident is the most severe critic a staff man can contend with today. Satisfy his questions and all other professional problems disappear. But there are other less important features of this multifaceted problem.

When war clouds were gathering in the late 30's, certain medical educators, and the Canadians in particular, pointed out the absolute necessity of an uninterrupted flow of well trained doctors for the armed forces should war be thrust upon us. Canadian medicine, who graduated her physicians in the field from 1914 to 1917 in World War I, required almost a quarter of a century to recover from what proved to be this fundamental error.

However, a compromise was conceived and placed into operation by the medical schools of the United States in the form of the "accelerated program." Perhaps twenty years from now, there will be some available evidence which will allow one to pass upon the questionable wisdom in the development and acceptance of this accelerated program.

During the first years of the war, from 1941 through 1944, in spite of the great improvements in the methods of transportation of the sick and wounded, the development of chemotherapy, the introduction of plasma and the increased availability of whole blood, it became increasingly apparent that the most valuable asset remained not these adjuncts named, but the "good doctor." I use the expression "the good doctor" in its broadest sense and refer specifically to *capacity* and to *training.* However, the only criterion that is available today is a rather unique yardstick, certification by a specialty board. Certification by specialty boards, membership in certain medical societies or fellowships in national specialty societies are still the only tangible facts available to the intelligent layman who may seek information concerning the medical stature of a physician.

The development of a residency program was a personal challenge and credit must be divided between Dr. Paul Magnuson, the Acting Assistant Medical Director for Research and Education, and the executive actions of General Bradley and General Hawley, who, not only supported Dr. Magnuson but afforded him specific encouragement.

Dr. Magnuson has been active in the American College of Surgeons for a good many years and it was during a particular period some eighteen to twenty-four months ago that the American College of Surgeons began its constructive investigations concerning the professional levels in hospitals throughout the United States. It was a most thankless task which required limitless and close cooperation from the various national hospital associations and the individual hospitals themselves. Startling changes in the hospital life of St. Louis resulted from these investigations of some eighteen months ago. There was an immediate shift, or shall one say "alteration," of professional personnel in the St. Louis hospitals—in the staffs of the St. Louis hospitals—as the direct result of these recommendations based solely upon professional standards.

Presented at the 89th Annual Session of the Missouri State Medical Association, March 30-April 2, 1947, Kansas City.
Secretary of Deans Committee for the Veterans Administration Hospital, Jefferson Barracks, Mo.

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After obtaining a leave of absence from the Northwestern University Medical School, where he was acting head of the Department of Surgery, Dr. Magnuson accepted the leadership in the Educational Program of the Veterans Administration. He insisted upon the decentralization of medical care. The United States is divided into thirteen area, rather similar to "service commands" for purposes of administration. Area No. 9 includes the states of Missouri, Kansas, Oklahoma and Arkansas. The Veterans Administration hospitals in Area No. 9 are located at Jefferson Barracks, St. Louis; Excelsior Springs, Missouri; Wadsworth, Kansas; Wichita, Kansas; Muskogee, Oklahoma; Oklahoma City, Oklahoma; Fayetteville, Arkansas, and Little Rock, Arkansas.

Two specific types of Veterans Administration hospitals were developed. One was designated a "nonaffiliated hospital," which is devoid of medical school control and does not have a residency system; a second type, an "affiliated institution" has a residency system sponsored by the Dean's Committee of the school of medicine in that particular area. The Dean's Committee also assumes the responsibility for staffing the Veterans Administration hospital from its faculty and thus is responsible for the professional care of the patients.

Now, during this same recent critical period when all hospitals were being scrutinized carefully from the standpoint of a professional staff, the Department of Medicine and Surgery of the Veterans Administration also underwent a reorganization. In cities in which medical schools were located, a Dean's Committee was formed. This Committee was charged specifically with the procurement of professional personnel on an attending and consultant level from the faculties of their schools of medicine, who were certified by their respective specialty boards, who were veterans of World War I or II, and, were the best possible candidates for these assignments.

The personnel of the Dean's Committee varies with the school of medicine. The Department of Medicine and Surgery left that decision to the dean of each respective school, and I can cite two policies—one in Bronx, New York, where one of the largest veterans hospitals in the country is in operation, an "affiliated hospital" controlled by the five deans of the five medical schools who "make up" the Dean's Committee, a committee of "five administrators." These deans rely upon their departmental heads for advice when specific professional or administrative problems arise. Another second policy exists in St. Louis where there are but two schools of medicine. The Dean's Committee in St. Louis is composed of the two deans of the respective schools, and three additional members from each of the faculties—personal nominations of the dean, responsible to him, but bearing the endowment of the executive faculty of the school of medicine. The Dean's Committee of the University of Kansas School of Medicine has assumed the responsibility for the professional care and the residency training program in four separate hospitals, a most formidable undertaking! In each instance, the Dean's Commtitee is charged with the development of a residency system on the same level as that which exists in university circles.

In 1910, Dr. Harvey Cushing wrote, "No hospital can obtain anything other than merely local celebrity which is not both a teaching hospital and one from which definite advancement in our knowledge of diseases and their treatment can come."

The Veterans Administration hospital at Jefferson Barracks, Missouri, has almost 800 beds—150 assigned to neuropsychiatry and the remainder divided equally between medicine and surgery. This is a general medical and surgical hospital in which residents first reported for duty in August, 1946. All appointments have been made for three years and a sincere attempt has been made to obtain the best possible man for each residency. I mention this point with considerable feeling because some residency programs have seen fit to restrict the applicants to graduates of their own schools. These appointments in St. Louis originally were made at the ratio of one resident to each twenty-five surgical patients and one resident to each forty-five medical or neuropsychiatric patients. It was obviously necessary to appoint an excess number to permit men at this residency level to participate in the residency training program of one of the two university hospital systems or medical schools in St. Louis. During the academic year, certain residents (particularly those on an intermediate and senior residency level) enroll in basic science in the postgraduate divisions of the two schools of medicine. These individuals have matriculated in the schools, the graduate schools of medicine in St. Louis, and attend class from 9:00 a. m. to 5:00 p. m. five and a half days a week. They are devoid of patient responsibility, and participate for four and a half months of training out of each year. This is permitted under the provisions of the Veterans Administration program, and is acceptable to the specialty boards.

At this time, residents are present on the major services—neuropsychiatry, medicine and general surgery and in many subspecialties such as anesthesiology, plastic surgery, genito-urinary surgery, orthopedic surgery, ophthalmology and otolaryngology. It becomes increasingly apparent that as this plan develops, there will be a definite increase in "on the job training" in the general services. It is expected that the residents in certain subspecialties such as radiology, thoracic surgery, plastic surgery and children's orthopedics will be sent to the university hospitals for such training because material in those particular fields is not available at this time at Jefferson Barracks. On the other hand, one can envision a plan in the not too distant future whereby those residents in general medicine and in general surgery will receive their basic science training on a graduate level at the Barracks —where they will spend a certain number of hours a day in the class rooms and laboratories and the re-

mainder of their time in the clinical fields at the Jefferson Barracks Hospital rather than go out to the schools of medicine as they are doing at this time.

There are more than sixty affiliated hospitals in the Veterans Administration at this time which have offered additional opportunities for the careful training of physicians recently separated from the armed services who require additional formal training before they may qualify for certification.

Sixty young doctors are enrolled in the residency program at Jefferson Barracks, but to obtain these sixty residents the Dean's Committee either personally screened each man or designated suitable individuals at a distance to perform this task in whom they had adequate confidence to perform this task. This has been no little undertaking.

I would like to pay tribute to three plans that I have had the privilege of observing in recent months. The plan of Dean Wahl of the University of Kansas, now in operation in the Veterans Administration at Wichita, Kansas, some two hundred odd miles from here, is excellent. Dr. Wahl nominated Dr. Wayne Bartlett (a graduate of Rush School of Medicine; a protege of Dr. Thomas Orr, Professor of Surgery, University of Kansas, and a former resident at Bell Memorial Hospital) to be his personal representative—to be his liaison officer, and charged him with the development of a residency program in Wichita. The Sedgwick County Medical Society, of which Dr. Bartlett was also a member, saw fit to make him their personal representative, and since this appointment has been made, the quality of medicine in the hospital has improved appreciably and the relationship between the doctors of that community, the University of Kansas School of Medicine and the professional staff of the Veterans Administration has improved immeasurably.

A second individual who has a plan in operation that is outstanding is Dr. Karl Menninger of Topeka. I do not have to invite attention to the fact that Dr. Menninger has colored his particular plan with his own dynamic personality. He is a positive man who abhors mediocrity. Dr. Menninger is successfully training most of the available talent in neuropsychiatry in the United States at this time and has almost a hundred trainees in Topeka. It is an extremely forceful plan and the men participate with a great deal of enthusiasm.

The third plan which also is colored by an individual's personality is that now in operation at Wadsworth, Kansas, under the aegis of "Dean" Diveley. I think many of the men in Kansas City are well aware of the tremendous amount of enthusiasm and drive that Rex Diveley has personally thrown into the Wadsworth plan. Recall how he has gathered his group together and how faithful they have been in carrying out their duties at Wadsworth. It has paid tremendous dividends.

In conclusion, let me again emphasize the fact that the doctors in the Veterans Administration are

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dealing with civilians—not Army or Navy personnel. There must be a minimal amount of regimentation. The professional care must always come first. To date, the patients like the residency training program. They can see specific results. The turnover has been increased threefold. The backlog is disappearing and America is pleased with this plan.

The year 1947 has been referred to by some as the "critical year." Others speak of it as "the crucible," but it certainly is of utmost importance that there be no lowering standards and no regression regardless of pressure groups and the multiplicity of plans and ideas that are most welcome but which occasionally confound one.

There must remain a clear understanding of what is required and only a common effort is necessary to see that the present and coming generations will be prepared properly for whatever might be in store for them from a medical standpoint.

The development of the residency system was the logical outcome of the challenge of the times. Its objectives are time-proven although the details of its applications are still in the formative stage. The program is in its infancy but its fundamentals and precepts are ageless.

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ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACT

Issued Monthly by the National Tuberculosis Association. Vol. XX, No. 11, November, 1947.

TUBERCULOSIS DEATH RATE FAILS TO TELL THE ENTIRE STORY

The best available single index as to the status of tuberculosis control is and always has been the mortality rate from this disease. The success of the tuberculosis program is best measured by the steady decline in the death rate during the past several decades. It is an impressive fact that tuberculosis mortality in the country as a whole has declined 53 per cent between 1924 and 1944.

The drop in tuberculosis mortality varies widely in the sex and color groups. The greatest decline in the past 20 years, for example, has been registered in the death rate for white women among whom the drop was 67 per cent; among non-white men, on the other hand, tuberculosis mortality declined but 42 per cent during the same period. (According to the last Federal Census, 99.4 per cent of all non-whites in the United States were Negroes; hence the two groups are almost identical.)

Sex and color	Tuberculosis death rate			Percentage decline in tuberculosis death rate	
	1944	1934	1924	1924-1944	1934-1944
All groups	41.3	56.7	87.9	53.0	27.2
White	33.7	46.2	74.9	55.0	27.1
Male	45.0	52.7	79.3	43.3	14.6
Female	23.3	39.6	70.4	66.9	41.2
Non-white	106.2	148.8	218.6	51.4	28.6
Male	122.7	156.9	215.0	42.1	21.8
Female	91.3	140.8	222.3	58.9	35.2

Table 1 shows for each sex and color group the tuberculosis death rates in the past two decades, as well as the percentage decline in mortality.

For no major cause of death has a mortality decline been recorded which compares favorably with the drop in the tuberculosis death rate. On the contrary, mortality from heart diseases, cancer, and certain other leading causes has increased rather steadily while that from tuberculosis has been dropping continuously.

Table 2 gives the 1944 death rates from these three major causes for each sex and color group.

Sex and color	Death rate per 100,000 population in 1944		
	Heart diseases	Cancer	Tuberculosis
All groups	315.4	129.1	41.3
White	310.1	128.8	33.7
Male	398.6	135.5	45.0
Female	254.2	133.3	23.3
Non-white	239.0	81.9	106.2
Male	274.3	75.6	122.7
Female	220.6	92.2	91.3

These death rates, though admittedly correct, tend to be misleading as to the relative importance of these three diseases. More of those who die of heart diseases and of cancer are elderly than is the case with those who die of tuberculosis. Moreover, tuberculosis is not only communicable but is preventable to an extent greater than either heart diseases or cancer.

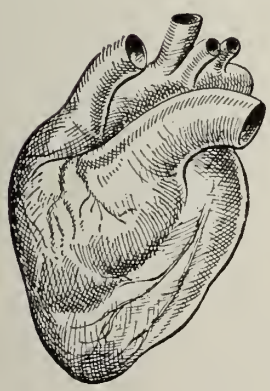
A computation made to show the potential loss in years of life resulting from deaths from heart diseases, cancer, and tuberculosis in 1944 demonstrates vividly the seriousness of the disease which too often leads to prolonged illness and death in youth or middle age. This computation is based on the expectation of life at birth, as published by the Metropolitan Life Insurance Company in its Statistical Bulletin for May, 1946.

Separate analyses have been made for white and non-white men and women since these groups vary widely not only as to their expectation of life, but in the age of distribution of deaths from certain causes.

The method used in this computation is simple indeed. For example, the average white woman may expect to live 69 years. If she dies at the age of 24 from tuberculosis, she has lost 45 potential



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From where I sit
by Joe Marsh

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Bert Childers was saying, it's funny how so many of our wartime habits stick with us.

Bert likes plenty of butter on his bread, but even now he can't get over spreading it like it was scarce as hen's teeth. And as a warworker, Bert used to stick to a temperate glass of beer on time off; and he still holds fast to beer and moderation.

Same way with Bert's wife. She not only has no trouble saving used fats, and waste paper. She's learned from wartime necessity to save each and every single thing that might possibly be used again.

From where I sit, it's mighty good that so many of these common-sense habits like thrift and moderation have stayed with us. Because they *belong* in America—along with tolerance, and mutual respect for one another's rights. They're habits that have helped to make this country as strong and neighborly and free as it is today.

Joe Marsh

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years of life, whereas if she dies at 62 of heart disease, she has lost but seven potential years.

In the aggregate 1,929,953 potential years of life were lost by all Americans who died of heart diseases in 1944, compared with 1,287,245 potential years lost by those who died of cancer and 1,175,500 by those who died of tuberculosis in that year. In other words, because of the differences in the ages of those who died from these diseases, the potential loss in years of life occasioned by deaths from tuberculosis is within 10 per cent of the loss caused by cancer, even though the tuberculosis death rate is but 32 per cent of the cancer death rate.

In spite of the fact that the mortality from heart diseases is seven and one-half times as high as that from tuberculosis, the potential years of life lost by those who died of heart diseases in 1944 were less than twice as numerous as the years lost by those who died of tuberculosis in the same year.

For many years the steadily declining tuberculosis death rate has been emphasized as the most significant evaluation of tuberculosis control. Less importance has been attached to a secondary result, namely, that not only are those who die of tuberculosis fewer in number each year but the median age at death becomes somewhat higher. These two encouraging developments have led some persons to the erroneous conclusion that tuberculosis is no longer a serious problem in this country. Yet, in spite of the declining death rate and the advance in the median age at death from tuberculosis occur at much younger ages even today than do deaths from heart diseases and cancer.

It is clear from these findings that tuberculosis still constitutes one of our most serious social problems because of the comparative youth of the patients and decedents. Since all cases of tuberculosis are preventable, the disease also presents a more acute public health problem than do other major causes of death. Tuberculosis is unquestionably the most serious public health problem among nonwhite races; moreover, the gravity of this disease among white men has never been given proper consideration.

Decline in Tuberculosis Death Rate Fails to Tell the Entire Story, Mary Dempsey, The American Review of Tuberculosis, August, 1947.

BRITISH CUT CHILD DIPHTHERIA DEATHS MORE THAN 80 PER CENT

For every six British children who died from diphtheria before the war only one died in 1946, according to the London correspondent of *The Journal of the American Medical Association*, writing in the October 11 issue. Credit for this is given to the national campaign launched by the Ministry of Health to immunize children against diphtheria before their first birthday. Prewar figures for the disease averaged 58,000 cases and 2,800 deaths annually; by 1946 the figures were only 18,284 and 472.

"Last year half a million children under five years of age were immunized," says the writer. "The aim this year is to immunize 590,000 babies before their first birthday.

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of the
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NOVEMBER, 1947

EDITORIALS

MEDICAL SIDELIGHTS

"Medical Sidelights" is the title of a column dealing with medical care which is being offered monthly to weekly newspapers in Missouri. The column is written and edited by members of the Association. One hundred two weekly newspapers are using the column which was offered for the first time for use in October. This column was entitled "Periodic Health Examinations." The one for use in November is on "Fractures." Several newspapers have become interested in the column after it has been called to their attention by a physician in the town.

Members are invited to contribute material for these columns. They should contain information of value to the public. The articles should be approximately 500 words and should be sent to the Association office for referral to the committee in charge of the release.

ANNUAL SESSION

The 1948 Annual Session of the Missouri State Medical Association will be held in St. Louis, March 14 to 17. All sessions will convene in the Jefferson Hotel.

The scientific program is near completion and has been planned carefully to be of value to the general practitioner. Not only subjects to be presented but the manner of presentation has been considered from the viewpoint of the general physician.

Exhibits will be on the mezzanine floor of the Jefferson Hotel. The number of technical exhibits has been restricted and some scientific exhibits will be used. Members who wish to have scientific exhibits should notify the Association office giving a full description of the exhibit and the amount of space needed. A committee will select the exhibits to be used.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY

The Kansas City Southwest Clinical Society held its 25th consecutive meeting on October 6 to 9, 1947. In its twenty-five years of existence the society has conducted many a fine program but none better than the one just completed. The physicians who arranged this worthwhile conference can be justly proud of its accomplishments. All good wishes for its continued success.

HEALTH EDUCATION WORKSHOP

A State Health Education Workshop, sponsored by the State Department of Education, the State Division of Health and the University of Missouri, was held August 4 to 8 at the University of Missouri. Sixty-four persons representing state and local leadership in education, public health, school health and allied agencies attended the Workshop to view and make plans for the solution of school-community health problems. The Missouri State Medical Association participated in the Workshop as did the American Medical Association, whose Dr. Fred V. Hein, Ph.D., Consultant in Health and Physical Fitness, acted in the capacity of consultant.

The primary problem considered by the Workshop was: What should constitute the school health program in Missouri? This problem was broken into four subsidiary problems which were:

1. What should be the health instructional program in relation to the school health program?
2. What should be the health service program in relation to the school health program?
3. What are the local, county, state, national and voluntary health resources that are available for achieving a good school health program, and how can they be utilized?
4. How can the school-community be organized for achieving a school health program?

The personnel of the Workshop was divided into four groups so that each of the subsidiary problems could be assigned to one of the four groups. The groups were of such size that free discussion and interchange of ideas toward a proposed solution of the assigned problems were gained. The local physician's role in a school health program came in for considerable discussion by each group. It was well brought out that no efficient and effective school-community health program can succeed without the willing support and guidance of the local physicians. The variations in local community conditions, it was recognized, call for consideration of school-community health programs to fit the local needs as well as the overall needs of the state.

The interest shown by the participants of the Workshop toward the development of a better school health program for Missouri was clearly evident but the action they take back in their home communities, in line with the ideas developed through the Workshop, will determine the value of this endeavor.

In view of increasing interest in school health problems, the American Medical Association sponsored a national conference on the cooperation of the physician in the school health and physical edu-

cation program on October 16 to 18, 1947, at Hotel Moraine, Highland Park, Illinois.

A. M. A. DIRECTORY INFORMATION BEING COLLECTED

Preparations are now being made to publish the new, Eighteenth Edition of the *"American Medical Directory."* The last edition of the Directory was issued late in 1942. Since that time, it has been impossible to publish a new edition because of wartime restrictions and the shortage of paper and labor.

About November 15, a directory card will be mailed to every physician in the United States, its dependencies and Canada, requesting information to be used in compiling the new Directory. Physicians receiving an information card should fill it out and return it promptly whether or not any change has occurred in any of the points on which information is requested. It is urged that those physicians also fill out the right half of the card, which information will be used exclusively for statistical purposes. Even if a physician has sent in similar information recently, mail the card promptly to insure the accurate listing of his name and address. There is no charge for publishing the data nor are physicians obligated in any way.

The Directory is one of the most important contributions of the American Medical Association to the work of the medical profession in the United States. In it, as in no other published directory, one may find dependable data concerning physicians, hospitals, medical organizations and activities. It provides full information on medical schools, specialization in the fields of medical practice, memberships in special medical societies, tabulation of medical journals and libraries and practically every important fact concerning the medical profession in which anyone might possibly be interested.

Therefore, should any physician fail to receive one of these Directory Information cards by December 1, he should write at once to the Directory Department of the American Medical Association requesting that a duplicate card be mailed.

VASCULAR ALLERGY

Recently published work warrants a prediction that a long series of experiments will establish vascular allergy as the fundamental pathology in diverse ailments.

Hawn and Janeway[1] recently reported giving crystallized bovine serum albumin, bovine serum gamma globulin and bovine serum as single intravenous injections, in doses of 1 gm. per kilo, to groups of rabbits. They were bled at regular intervals for serologic study and sacrificed at varying lengths of time for pathologic study.

The principal pathologic lesions in rabbits given bovine serum were widely dispersed segmental acute inflammatory lesions of the arteries. These lesions were at their height two weeks after injection and showed marked repair at four weeks.

Crystallized bovine serum albumin produced lesions most exclusively confined to the arteries which were at their height at two weeks, were healing at three and healed at four weeks. The lesions were less numerous and less intense than in animals given whole serum and were found only in some of the animals.

Bovine serum gamma globulin induced a high incidence of acute glomerulonephritis and its sequelae. Arterial lesions were few and slight, and limited to the great vessels of the heart and lungs. Necrotizing lesions were not found. In several animals there were lesions strongly suggestive of Aschoff body formation. Less conspicuous lesions were present in the liver and joints. Lesions were observed in every animal and were most widespread and acute at one week and were healing at two weeks after the injection.

The immunologic studies showed that the acute lesions were only observed when antigen was present and before antibody appeared in the circulation; that healing of lesions was observed only when antigen had almost or completely disappeared from the circulation, usually with the appearance of antibody; that there was a correlation between the rapidity of evolution of the lesions and the rapidity with which the antigen disappeared from the circulation, and that there was a rough correlation between the proportion of animals showing lesions and the proportion developing antibodies after the injection of a particular protein solution.

Kyser, McCarter and Stengle[2] reported that injecting sterile, unpreserved horse serum intravenously into rabbits resulted in cardiac lesions consisting of pericapillary and periarteriolar collections of lymphocytes and monocytes with occasional polymorphonuclear leukocytes. In some sections, small areas of necrosis were found adjacent to blood vessels surrounded with mononuclear cells which resembled the Aschoff body. In many vessels the entire wall of the vessel was infiltrated with cells. Endothelial proliferation was marked and in some sections hyalinization of the vessel wall was evident. Periarteriolar proliferation of fibroblasts frequently were present. Other types of changes were: scattered areas of hyalinization of muscle fibers, loose infiltration with small round cells scattered between muscle fibers and occasional areas of vacuolar degeneration of fibers. These changes occurred in eleven of twelve animals.

Nine rabbits were given 2 mg. of Benadryl twice a day and the serum throughout the experiment; two developed moderate cardiac lesions; four developed no lesions, and three died but were not

1. Hawn, C. V., and Janeway, C. A.: Histological and Serological Sequences in Experimental Hypersensitivity, J. Exper. Med. 85:571, 1947.

2. Kyser, Franklin A.; McCarter, John C., and Stengle, James: J. Lab. & Clin. Med. 32:379, 1947.



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Replacing turmoil with serenity for women undergoing menopausal disturbances has become a matter of comparatively specific therapy.

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examined. In this group the absence of perivascular lesions was striking.

Six rabbits received serum plus 10 mg. of Benadryl per kilogram of body weight two times daily subcutaneously throughout the experiment; three had no lesions, two had minimal lesions and one had moderate lesions less marked than the control group.

Nine animals received this serum plus an experimental drug—"No. 1627"—in a dosage of 3 mg. per kilogram two times daily subcutaneously; eight developed no lesions or only slight lesions and one had moderate changes.

Serum with a small amount of preservative added induced marked lesions in two and slight lesions in a third rabbit.

It is concluded that Benadryl and drug "No. 1627" are effective in impeding the development of myocardial lesions in rabbits induced by the intravenous injection of sterile horse serum according to the method of Rich and Gregory (Bull. Johns Hopkins Hosp. 72:65, 1943).

Already rheumatic fever and its frequently accompanying pneumonitis, acute glomerulonephritis and some types of wheezy breathing appear on the threshhold of pathologic explanation.

These studies with the suggestive experimental evidence that polyarteritis can also be produced by the absorption of chemical drugs, with and without the injection of sera, gives warning against the injudicious and indiscriminate use of drugs and sera. That antihistaminic substances inhibit the development of these lesions suggests a method of therapeusis to decrease the potential dangers of such substances.

NEWS NOTES

Wendell G. Scott, M.D., St. Louis, was a guest of the Michigan State Medical Society on September 23 in Grand Rapids, Michigan. He delivered addresses on "The Investigation of Low Back Pain by Radiographic Methods" and "Prolapses of the Gastric Mucosa as a Cause of Gastrointestinal Symptoms."

C. Souter Smith, M.D., Springfield, was a speaker over WDAF in Kansas City on October 8 in a series of presentations sponsored by the League of Women Voters on "Interesting Women."

T. E. Sanders, M.D., St. Louis, was a guest speaker at the annual assembly of the Omaha Mid-West Clinical Society in Omaha October 27 to 31. His subject was "The Ocular Diseases of Infancy and Childhood."

James Barrett Brown, M.D., and R. J. Crossen, M.D., St. Louis, were guest speakers at the annual meeting of the Colorado State Medical Society in Denver, September 17 to 20. Dr. Brown spoke on "Neck Dissection for Metastatic Carcinoma" and Dr. Crossen talked on "Advances in the Diagnosis and Treatment of Cancer of the Uterus" and "Medical Gynecology."

Florence E. MacInnes, M.D., Kansas City, spoke before the Women's Chamber of Commerce of Kansas City on September 16 on "Kansas City's Program for Tuberculosis Control."

Norman Tobias, M.D., St. Louis, spoke before the Macoupin County (Illinois) Medical Society on September 23 on "Contact Dermatitis."

The memory of the late Katharine Berry Richardson, M.D., Kansas City, was honored by a program and unveiling of a plaque in the central lobby of the Children's Mercy Hospital of Kansas City upon the anniversary of its founding fifty years ago. Dr. Richardson, with the aid of Dr. Alice Graham, were founders of the hospital.

Physicians are being asked to furnish medical evidence to substantiate the claims of railroad workers who may now draw cash sickness benefits under the Railroad Unemployment Insurance Act. The Railroad Retirement Board points out that unless an application is mailed not later than the seventh day after the first day of sickness claimed, it may not be received within the legal time limit for filing applications. Physicians are asked either to return each completed statement of sickness to the patient or mail it to the office of the board to which it is addressed.

Thirty-five members of the St. Louis Medical Society were presented golden anniversary certificates at the meeting of the Society on October 7 in recognition of their having completed fifty years of medical practice. Recipients were: Drs. Louis H. Behrens, William D. Black, Rudolph Buhman, James G. Calhoun, George F. Chopin, Walter P. Eidmann, Theodore Greiner, Harry H. Helbing, Thomas A. Hopkins, Benjamin Y. Jaudon, Frank J. V. Krebs, Harry W. Lyman, A. Edward Meisenbach, George A. Mellies, Harry H. Meyer, John C. Morfit, Abram T. Quinn, William E. Sauer, Edwin J. Schisler, Adolph G. Schlossstein, Robert E. Schlueter, Philip Schuck, Benjamin Shanklin, Kate C. Spain, Horace W. Soper, Floyd Stewart, Frank J. Tainter, Robert J. Terry, Herman L. Weiterer, William S. Wiatt, Meyer Wiener, Frederick E. Woodruff, John Zahorsky.

Herbert J. Rinkel, M.D., Kansas City, and Harry L. Alexander, M.D., and Stanley F. Hampton, M.D., St. Louis, are Missouri physicians who will appear on the program of the American Academy of Allergy which will meet at the Jefferson Hotel, St. Louis, from December 15 through 17.

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*Harris, S.C.; Ivy, A.C., and Searle, L.M.: The Mechanism of Amphetamine-Induced Loss of Weight: *A Consideration of the Theory of Hunger and Appetite*, J.A.M.A. *134*:1468 (Aug. 23) 1947.

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Speakers who have appeared on programs of component medical societies recently under the auspices of the Committee on Postgraduate Course follow:

L. O. Loyd, M.D., Jefferson City, spoke at a meeting of the Chariton-Macon-Monroe-Randolph County Medical Society on "Hypertension" and at a meeting of the societies in the Tenth Councilor District on the same subject.

Paul O. Hagemann, M.D., St. Louis, spoke at a meeting of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society on "Rheumatoid Arthritis."

Daniel L. Sexton, M.D., St. Louis, spoke at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on "Endocrine Problems in the Aged."

Joseph C. Edwards, M.D., St. Louis, spoke at a meeting of the Jefferson County Medical Society on "Hypertension."

J. W. Allee, M.D., Columbia, spoke at a joint meeting of Miller, Morgan and Moniteau Counties Medical Societies on "Undulant Fever."

Emmett F. Hoctor, M.D., Farmington, spoke at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on "Modern Shock Treatment."

Merl J. Carson, M.D., St. Louis, spoke at a joint meeting of Dunklin, New Madrid and Pemiscot Counties Medical Societies on "Infant Feeding, Immunizations and General Care Through the First Year of Life."

Everett D. Sugarbaker, M.D., Jefferson City, spoke at a meeting of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society on "Cancer—Its Behavior and Treatment."

Maxwell G. Berry, M.D., Kansas City, spoke at a joint meeting of nine county medical societies at Chillicothe on "The Significance of Chest Pain."

B. E. DeTar, M.D., Joplin, spoke at a meeting of the Eighth Councilor District on "Gallbladder Infection."

M. Pinson Neal, M.D., Columbia, spoke at a meeting of the Eighth Councilor District on "Diagnoses Commonly Missed in General Practice."

Garrett Pipkin, M.D., Kansas City, spoke at a meeting of the Eighth Councilor District on "The Use of Physical Therapy in General Practice."

Robert W. Bartlett, M.D., St. Louis, spoke at a meeting of the Phelps-Crawford-Dent-Pulaski County Medical Society on "Diagnosis and Management of Tumors of the Large Bowel."

ORGANIZATION ACTIVITIES

THE COUNCIL

The Council met at the Coronado Hotel, St. Louis, on September 27 and 28, 1947, with the following present: Drs. H. E. Petersen, St. Joseph; W. F. Francka, Hannibal; J. W. Thompson, St. Louis; Otto W. Koch, Clayton; J. F. Jolley, Mexico; R. W. Kennedy, Marshall; Edgar C. Virden, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Frank W. Hall, Cape Girardeau; Morris B. Simpson, Kansas City; Robert Mueller, St. Louis; C. E. Hyndman, St. Louis; W. A. Bloom, Fayette; G. V. Stryker, St. Louis; R. E. Schlueter, St. Louis; A. R. McComas, Sturgeon; James R. McVay, Kansas City; Mr. T. R. O'Brien, St. Louis; Mr. Ray McIntyre, St. Louis; Mr. W. H. Bartleson, Kansas City. Members of committees reporting to the Council and guests of the Council were: Drs. R. M. James, Jefferson City; Carl F. Vohs, St. Louis; Howard B. Goodrich, Hannibal; R. O. Muether, St. Louis; Ira H. Lockwood, Kansas City; A. W. McAlester, III, Kansas City; A. W. McAlester, Jr., Kansas City; Grayson Carroll, St. Louis; J. H. Kopp, St. Louis; Mr. Ray F. McCarthy, St. Louis; Mr. Donald Pratt, St. Louis; Mr. Hartnett, St. Louis.

Upon motion of Dr. Francka, the selection of the dates of the 1949 Annual Session were left to the officers and the executive office.

Upon motion of Dr. Kennedy it was decided to invite the A. M. A. to hold its 1949 midyear session in St. Louis.

Upon motion of Dr. Francka, the Chairman of the Council was instructed to appoint a committee to consider emergency expenditures for the office and salaries of office personnel. The following committee was appointed: Drs. Thompson, Hyndman, Simpson, Bloom, Jolley.

Upon motion of Dr. Petersen, Mr. O'Brien was instructed to obtain data on the possibility of Social Security for personnel and with the committee on emergency expense to report to the next meeting of the Council.

Dr. Hyndman reported the Association in sound financial condition and his report was accepted.

Mr. O'Brien read letters from the A. M. A. concerning national health insurance which had been sent to Governors of the various states and stated that this subject without doubt would be a political issue in the next national election and would appear in party platforms.

A letter from Mr. Richard Dabney asking endorsement of H. B. 126 was read. After discussion, it was decided that further study of this Children's Code bill as well as H. B. 65 should be made by Mr. O'Brien and action by the Council deferred until the next meeting.

It was suggested that Mr. O'Brien secure additional information regarding S. B. 259, and report to the Council at the next meeting.

The veto by the Governor of the appropriation for the sanatorium at Mount Vernon was discussed by Mr. Pratt and Mr. Hartnett of the Missouri Tuberculosis Association. They explained that a survey of the state was being made and that they would present a report of the survey as soon as it was completed, and that such information as was available at the time of the next Council meeting would be presented.

Dr. Mueller in reporting on public relations work of the Association referred to an article by Mr. Lester Perry of Pennsylvania and pointed out what Missouri was doing in the points Mr. Perry stressed as follow: relation with members of the Association; relation of individual doctor with patient; relation with allied groups; relation with pharmaceutical groups and representatives; relation with health agencies; relation with government agencies; relation with civic clubs; relation with newspapers, clergy and representative civic persons; relation with the general public. It was pointed out that 90 per cent of public relations was various relationships and 10 per cent was newspaper releases in Pennsylvania.

Mr. O'Brien enlarged on the various phases Dr. Mueller brought out and told of releases that had gone out since the last Council meeting and their use. He announced the beginning of a monthly health column in county newspapers the first of October.

Mr. McCarthy reviewed the work of the Hospital Survey Committee in its work to comply with the re-

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His great book (printed, like the Copernican theory, in 1543—11 years after Jordan's book on teeth and a year before Ryff's on the correct number of tooth roots) showed no vena cava arising from the liver, no imputrescible heart bone, no opening between the 2 ventricles, etc. He had brought honest *observation* to anatomy.

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quirements of the Hill-Burton Hospital Construction act. He stated that the survey of hospital and facilities was 85 per cent completed and at its completion a survey of needs of hospitals would be laid out on an area basis. He advised that counties interested in hospitals go ahead with the raising of funds but await any action on construction until the areas had been designated.

Dr. J. H. Kopp spoke concerning the American Association of Physicians and Surgeons and asked the endorsement of the Council. After discussion in which it was brought out that the work appeared to be similar to that of the National Physicians' Committee and that the Council had approved the National Physicians' Committee, it was recommended that it be suggested to the proper authorities of the two organizations that they combine their objectives.

Mr. O'Brien reported a meeting of the Committee on Control of Venereal Diseases at which the following proposal by the Division of Health was approved and recommended to the Council for approval: Any physician in the state who has a patient with syphilis whom he thinks should be sent to the rapid treatment center, the Midwestern Center, St. Louis, may do so and be paid $10.00 for his diagnosis and the patient receive free care; or if he feels the patient can afford treatment, the Division of Health will supply the necessary drugs for the physician to care for the person as a private patient. For the time being, the program will be placed in operation only in the Southeast area of the state. Upon motion of Dr. Francka the report was accepted.

Mr. McIntyre reported that only a small number of county societies continued meetings during the summer but that beginning in September, many meetings were held. He reported attendance at the Health Education Workshop held in Columbia in August under the sponsorship of the Department of Education of the University of Missouri. He announced a Rural Health Conference to be held in Jefferson City on October 15 to which many health agencies had been invited to send representatives for the purpose of better coordination of activities. It is hoped that this meeting will lead to other discussion meetings with larger representation.

Dr. Simpson moved that the Council consider an award of merit or appreciation for persons who had been of unusual service in promoting the health of the people. Upon motion, the following committee was appointed: Drs. Francka, Mueller, Hall, Koch, Bloom.

Dr. Petersen invited the Council to hold its next meeting in St. Joseph. The invitation was accepted.

Dr. McAlester reported for the Committee on Public Health and Education and recommended that lay meetings with medical speakers before high schools, health forums and interested groups be carried out. It was recommended that the Woman's Auxiliary be urged to participate in this plan. The report was approved.

Drs. McVay, Schlueter and McComas gave brief reports on the last session of the A. M. A. Dr. McVay pointed out the stressing of public relations in the doctor's office and reported work by the Council on Medical Service and urged that health councils must be initiated and directed by county medical societies. Dr. Schlueter reviewed the situation on the Rich Associates association with the A. M. A. and the adverse newspaper comments which their resignation evoked.

Dr. Schlueter read the following resolution which was presented by the Missouri delegates, at the instruction of the Council, to the House of Delegates of the A. M. A.

WHEREAS, Some medical schools are in need of a greater income to maintain their present high standards of instruction and scientific medical research and

WHEREAS, It is actually impossible to increase the tuition fees sufficiently to secure the required funds; and

WHEREAS, Certain schools of medicine are considering the organization of clinics for the practice of medicine and surgery on a profit making basis in order to attain this end; and

WHEREAS, Such clinics would be in direct competition with the graduates of the medical schools involved as well as with all other practicing doctors of medicine; therefore, be it

Resolved, That the House of Delegates of the American Medical Association be requested to instruct the Council on Medical Education and Hospitals to study this problem and find the proper means for combatting this critical situation, which might even require an appeal to existing foundations or the creation of a new national voluntary foundation for the specific purpose of subsidizing approved medical schools which require financial assistance.

The resolution was referred to the Reference Committee on Medical Education and Hospitals which recommended that the contents of this resolution be considered by the Council on Medical Education and Hospitals of the A. M. A. in their survey of medical schools and hospitals.

Upon motion of Dr. Virden, the following interpretation of the by-law concerning junior membership was passed: That the amendment became effective at time of passage at the 1947 meeting and affects only members coming in after that date.

Dr. Muether outlined the program for the 1948 Annual Session as five scientific sessions, one on pediatrics, one on obstetrics, one on problems of the acute abdomen and two sessions of papers on varied subjects. He stated that some scientific exhibits would be used. The report was accepted.

Dr. Goodrich presented the report of the special committee on cancer as follows:

The committee unanimously recommends:

1. That there be only one chapter, the Missouri Chapter.

2. That we use the partially reorganized chapter as the framework on which to complete the reorganization.

3. That we recognize Dr. Robnett as president of this chapter (even though he has sent in his resignation) because there has been no meeting since he sent in his resignation.

4. That we commend Mrs. Fred Thompson, Madison, commander of the Field Army, vice president of the new organization and acting president since Dr. Robnett sent in his resignation, for her efforts and cooperation.

5. We recommend that the board of directors be enlarged to thirty-two, keeping all those who attended the first meeting on May 18, 1947, in Jefferson City.

6. That these directors be sixteen lay persons and sixteen doctors of medicine.

7. That eight of the lay persons be from the Field Army.

8. That the other eight lay persons be representative citizens interested in the work of the cancer program, such as representatives of the farm bureau, the newspapers, teachers, business, etc.

9. That ten of the doctors of medicine represent the ten Councilor Districts and be appointed by the Council.

10. That the six additional doctors of medicine come three from St. Louis and three from Kansas City.

11. That all doctors of medicine selected have a real interest in or expert knowledge of cancer and its treatment.

12. We recommend that Dr. Jorstad, present chairman of the executive committee, function until the new reorganization is completed, and then turn over the funds, records, etc., to the new organization.

13. That the present board of directors and officers of the new organization meet as soon as possible to elect the new directors and then that another meeting should be called after reasonable notice to the newly elected directors for a full meeting of the directors to create a permanent organization with permanent officers, committees, etc.

14. We recommend that at all times the new Missouri chapter think and act for the good of the State of Missouri as a whole.

The charter of the reorganized chapter has been issued. The committee thanks both Dr. Robnett and Mrs. Thompson for their patience in a difficult situation.

The committee asks to be discharged as its work is completed. Signed by Drs. Goodrich, Robnett, Ernst, Virden, Jorstad. Upon motion of Dr. Kennedy, the report of the committee was accepted.

Dr. Stryker made a brief report on The Journal and asked that Councilors assist the Committee on Publication by notifying it of good scientific material available and of news of the members.

The report of the special committee to study the four hospital and medical service plans in the state was presented by Dr. Goodrich. After discussion, a motion by Dr. Virden that this information be transmitted to the four Boards of Trustees was passed. Mr. Bartleson was requested to incorporate the minutes of the September 27 meeting of the committee into minutes of previous meetings so it would be in proper form to submit to the Boards of Trustees.

J. W. Thompson, M.D., Chairman.

COMMITTEE ON CONTROL OF VENEREAL DISEASE

The Committee on Control of Venereal Disease met in Jefferson City on September 23.

A proposal was submitted by the Division of Health of Missouri for the participation of private physicians in syphilis control in Missouri. The proposal follows:

"On July 1, 1947, the Division of Health discontinued its policy of compensating physicians for part time service in venereal disease clinics other than those under the supervision of the local health department. This action was taken because, in the interest of economy and efficiency, rapid treatment with penicillin is considered a more effective method of venereal disease control.

"In place of the program that has been discontinued, it is proposed that physicians be compensated for certain types of syphilis diagnosed and referred to the Midwestern Medical Center for rapid treatment. The Midwestern Medical Center is located at 3630 Marine Avenue, St. Louis, and is operated by the U. S. Public Health Service exclusively for the rapid treatment of syphilis.

"The following conditions governing the new program are proposed:

"1. Stages of syphilis for which compensation will be allowed:

"a. Primary.

"b. Secondary.

"c. Early latent (asymptomatic syphilis of less than four years duration. In the absence of history or clinical manifestations, latent syphilis in Negroes 25 years of age or under and in whites 30 years of age or under).

"d. Syphilis in pregnancy, untreated or inadequately treated.

"e. Infectious relapsing syphilis. (Other types of syphilis are, in the main, not infectious and are therefore relatively unimportant in the control program.)

"2. The Midwestern Medical Center will accept noninfectious syphilis cases on the basis of special arrangements with the physician, but no compensation will be allowed for the referral of such patients. The Midwestern Medical Center has a special form for the referral of late syphilis.

"3. The program will be in effect in all areas of the state except the following localities where public facilities already exist: St. Louis, St. Louis County, Kansas City, Jackson County, St. Joseph, Buchanan County, Cass County, Greene County, Jasper County, Johnson County, Laclede County, Marion County, Miller County, Newton County, Pemiscot County, Phelps County, Pulaski County, Texas County. (In these excluded areas, physicians refer their medically indigent patients to the local health department for this type of service.)

"4. Compensation to be at the rate of $10.00 for each acceptable patient.

"5. Midwestern Medical Center diagnosis to be accepted for purposes of determining acceptability of a case for payment.

"6. The referring physician is expected to cooperate in post-treatment follow-up.

"7. Payments will be made by the Division of Health following certification of eligibility by Midwestern Medical Center. (Confirmed diagnosis and hospitalization.)

"8. Transportation (by bus) will be made available on request to Midwestern Medical Center if patient is unable to provide transportation.

"It is further proposed that for the first six months of operation the program be limited to Public Health districts 2, 4 and 5 (Southeast Missouri). This plan will make it possible to establish a perfected administrative procedure before it is applied to the entire state."

After discussion, the Committee voted to approve the proposal and submit it to the Council of the Missouri State Medical Association.

Rogers Deakin, M.D., Chairman.

The Council approved the proposal upon the recommendation of the Committee at a meeting on September 27 and 28.

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for October and November, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

November 5: Miscellaneous.
November 7: Gynecologic and Genitourinary.
November 12: Skin.
November 14: Breast.
November 19: Gastrointestinal.
November 21: Cervix.
November 26: Skin.
November 28: Head and Neck.
December 3: Miscellaneous.
December 5: Gynecologic and Genitourinary.
December 10: Skin.
December 12: Breast.
December 17: Gastrointestinal.
December 19: Cervix.
December 24: Skin.
December 26: Head and Neck.
December 31: Bone and Lymphomas.

COMPULSORY HEALTH INSURANCE A POLITICAL ISSUE

Two letters recently have been sent to the governors of the various states. It is too early to speculate as to the intention of the Democratic and Republican National Committees on the subject of compulsory health insurance. It would appear, however, that health insurance may be a definite campaign issue in 1948. The letters follow:

"United States Senate
"Committee on Labor and Public Welfare,
Princeton, N. J.
"August 7, 1947.

"My dear Governor . . .:

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*Goldthwait, J. E., Brown, L. Y., Swaim, L. T., and Kuhns, J. G., *Body Mechanics in Health and Disease*, 103-105, J. B. Lippincott Co., Philadelphia, 1937.

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present Congress has been the consideration of a national health policy which will bring about a wider medical service to meet the health needs of our people.

"To the end that this subject must be fully investigated, a subcommittee of the Senate Committee on Labor and Public Welfare has been studying the subject for some months. This subcommittee is composed of the following Senators: Senators Ball, Donnell, Pepper, Murray, and myself as Chairman.

"In the course of our investigation and hearings, two fundamentally different approaches to the matter have been presented and considered. These respective approaches are covered by bills that were introduced in the 79th Congress and by bills introduced in the 80th Congress. Extensive hearings were held last year on the Wagner-Murray-Dingell bill which was one of the measures introduced in the 79th Congress. Extensive hearings have been held this year on S. 1320 introduced in the 80th Congress by Senator Murray and others, which bill is the successor of the so-called Wagner-Murray-Dingell compulsory health insurance bill, and on S. 545 introduced by Senators Taft, Ball, Smith and Donnell.

"Supporters of S. 1320 contemplate a nation-wide tax collected by payroll deductions of workers and other taxes on non-payroll citizens, in return for which tax and Federal Government assumes responsibility for the overall medical care of all the people. Provision for certain decentralization of administration is made in the bill.

"S. 545 on the other hand, contemplates Federal grants to the several states and challenges the states to develop their own programs for taking care of the health needs of the people within their respective jurisdictions. No special earmarked tax is proposed under the plan.

"Among the important questions which enter into the consideration of the bills are:

"1. What percentage of the population in the various states is not getting adequate medical care today; and what classes—that is, the very poor, the white collar class, etc.

"2. What states would approve a compulsory tax plan such as S. 1320 calls for, with a Government supervised medical service, or

"3. What states would prefer the S. 545 plan, leaving to the states the determination of policy—that is, compulsory or voluntary group health plans, etc.

"Our subcommittee would be very much aided if we could have a statement covering the situation in your state on these matters, which I assume could be prepared by the health authorities. I should add that under either plan Federal grants-in-aid are contemplated. Under S. 1320 the Federal tax would cover the entire cost, whereas under S. 545 a matching program is contemplated. Copies of S. 545 and S. 1320 are enclosed.

"Also as related to these problems, I would appreciate information as to the situation in your state with regard to the following matters:

"1. How you handle the health problem in your widely scattered rural areas:

"2. How the new Federal aid-to-hospitals program is working.

"The assistance of our forty-eight states with respect to this important matter will be greatly appreciated, and I hope you can give us an outline of the situation in your state. In making this request I am acting in the spirit of which I understand is the position of the Governors' Conference—a larger participation by the states in the formulation of important national policies.

"Always cordially yours,

"H. Alexander Smith, Chairman, Subcommittee on Health."

"Democratic National Committee

"My dear Governor . . .:

"This is in connection with a letter sent to all governors by Senator H. Alexander Smith (R), New Jersey, concerning the two federal health measures now pending in Congress.

"The letter does not give an accurate description of the two measures and appears to be an effort to obtain support for the bill sponsored by Senator Taft and the Republican party.

"Senator Smith has endeavored to give the impression that the Wagner-Murray-Dingell bill sponsored by the Democrats provides for extensive federal control over medicine. Actually it provides for local operation of a health insurance plan assisted by federal funds under which patients continue to choose their own doctors as they do now.

"On the other hand the Taft bill would not care for the entire population, but only for 'paupers.' Also it would give less federal help to the poorer states which need such help the most.

"The Wagner-Murray-Dingell bill proposes one minimum standard of medical care for all of the country.

"Senator Smith's letter is carefully written to give the impression that the Wagner-Murray-Dingell bill would encroach upon state rights.

"It would not. What it would do is provide enough funds for all states to do a decent minimum job in medical care for its citizens.

"The Taft measure would require needy states to match federal funds. This would mean that the more a state needs federal help to provide adequate medical care the less aid it would be able to receive.

"If you are planning to reply to Senator Smith's letter and desire any detailed additional information about the two health measures the Committee will be glad to supply you with the information.

"With best wishes,

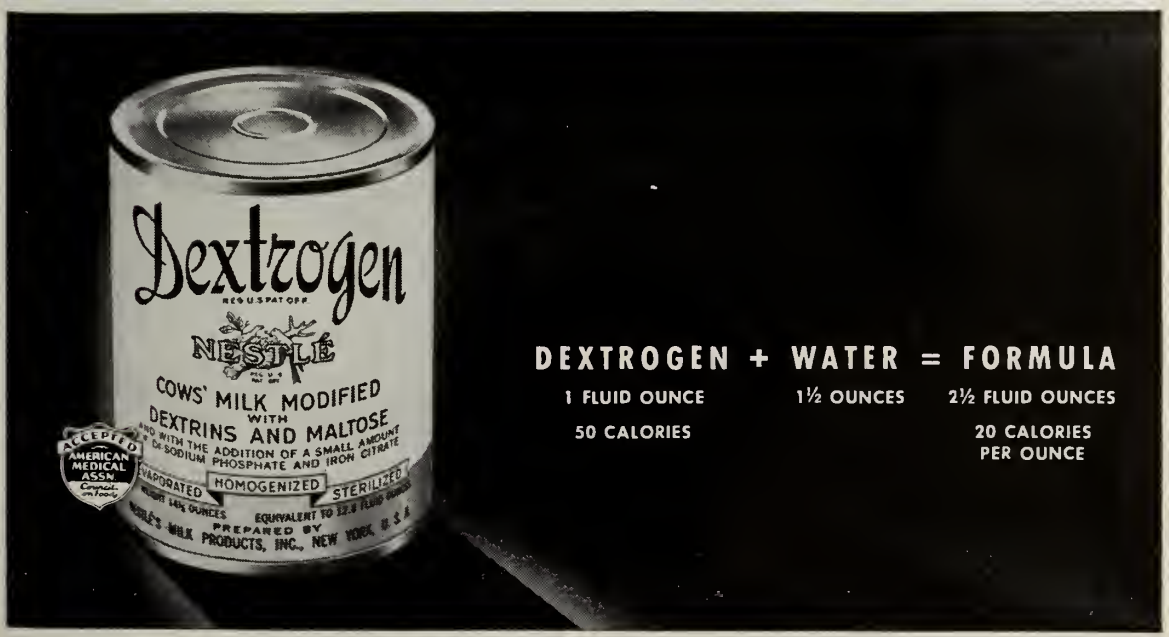
"Gael Sullivan, Executive Director."

BRITAIN EXPECTS 5,000 POLIO CASES

At the present rate at which poliomyelitis cases are being reported, Britain expects 5,000 cases before the end of 1947, writes the London correspondent in the October 4 issue of *The Journal of the American Medical Association.* This will be the highest number for any year since the 1912 requirement that all cases be reported to authorities.



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SOCIETY PROCEEDINGS

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on September 24 at 8:30 p. m., at the Health Center, St. Louis County Hospital, Clayton.

Julius Jensen, M.D., reported that the dinner to be given by the St. Louis Medical Society, the St. Louis County Medical Society and the St. Louis Dental Society would be held on November 24 at Hotel Jefferson with Professor Shields Warren speaking on "Atomic Energy."

Two new members, Drs. C. Sharp and M. Davidson, were introduced.

Julius Jensen, M.D., spoke on "Recent Advances in the Management of Cardiovascular Diseases." His paper was discussed by Drs. Joseph Backlar, Eugene Brown, Otto Koch, Robert Koch, N. Vitale, R. A. Walther, Sr., R. Holden and John D. Hayward.

Meeting of October 8

The Society met on October 8 at 8:30 p. m. at the Health Center, St. Louis County Hospital, Clayton.

The secretary read a letter from the A. M. A. stating its opposition to contract medicine by hospitals and other organizations. Upon motion, this was referred to the medical economics committee with a request that it be reported on at the next meeting.

Dr. Koch reported that the annual installation banquet would be held at the Coronado Hotel on January 14.

Paul Hagemann, M.D., St. Louis, spoke on "Newer Concepts and Recent Advances in the Management of Arthritis." His paper was discussed by Drs. R. C. Kingsland, S. Tashma, N. S. Vitale, F. W. Teiber, J. D. Hayward, J. R. Daly, R. D. Furlong, A. J. Steiner, I. I. Berwald and E. C. Holscher.

MARTYN SCHATTYN, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

J. F. JOLLEY, MEXICO, COUNCILOR

Miller, Moniteau, Morgan County Medical Societies

A joint meeting of the Miller, Moniteau and Morgan County Medical Societies was held at Versailles on September 17 with the following members and guests present: W. L. Allee, M.D., G. D. Walker, M.D., E. O. Shelton, M.D., and Carl Buehler, Jr., M.D., Eldon; H. C. Hume, M.D., Tipton; L. L. Latham, M.D., K. S. Latham, M.D., and E. A. Kibbe., M.D., California; A. J. Gunn, M.D., W. G. Gunn, M.D., and J. L. Washburn, M.D., Versailles; J. W. Allee, M.D., Columbia, and Raymond McIntyre, St. Louis.

Mr. McIntyre talked briefly on the desire of the State office to be of service to all physicians.

Dr. J. W. Allee gave an interesting presentation on "Diagnosis and Treatment of Undulant Fever."

The physicians were guests at a dinner meeting of the Tri-County Woman's Auxiliary prior to the meeting.

J. L. WASHBURN, M.D., Secretary.

NEW ASSOCIATE EDITOR OF JOURNAL

Dr. Morris Fishbein, editor of *The Journal of the American Medical Association*, announced recently that Dr. Richard J. Plunkett has taken over his duties as associate editor of *The Journal*. Dr. Plunkett, who formerly was vice president and director of the Division of Health and Sanitation of the Institute of Inter-American Affairs in Washington, D. C., received his M.D. degree from Tufts Medical College in 1933 and his master's degree in public health from Harvard in 1939.

WOMAN'S AUXILIARY

Missouri State Medical Association

Woman's Auxiliary to the St. Louis County Medical Society

The October meeting of the Woman's Auxiliary to the St. Louis County Medical Society was held at the St. Louis County Health Center, Clayton, on October 22 at 8:30 p. m.

Mrs. Julius Jensen, Chairman of Public Relations, introduced Mr. J. Walsh Stull, Director of Information and Education of the Doctor's Medical Foundation of St. Louis and former director of public relations of the Wesley Memorial Hospital, Chicago, who spoke on "Public Relations in Hospitals and the Medical Field."

Mrs. F. L. Finley and Mrs. R. A. Walther, Overland, were hostesses at a snack bar for members of both the Auxiliary and the St. Louis County Medical Society after their respective meetings.

MRS. C. H. DENNY, Chairman,
Press and Publicity.

BOOK REVIEWS

DIFFERENTIAL DIAGNOSIS OF JAUNDICE, THE, by Leon Schiff, Ph.D., M.D., Associate Professor of Medicine, Department of Internal Medicine, University of Cincinnati Medical School; Director, Gastric Laboratory, Cincinnati General Hospital. The Year Book Publishers, Inc. 1946. Price $5.50.

This book will constitute a valuable addition to the Year Book Publishers series of similar volumes. It represents not only an extensive experience of the author in his service at Cincinnati General Hospital, but contains an exhaustive bibliography of men equally experienced in this field.

It is divided into four main sections dealing with parenchymal, neoplastic, calculus and retention jaundice. In the first of these considerable attention is devoted to the chapter on "Infectious Hepatitis," which is not only common among civilians but constituted a major medical-military problem.

In the chapter on "Neoplastic Jaundice" stress is laid on the diagnosis of those cases which might prove amenable to surgery.

Finally there is an excellent review of all the known clinical and laboratory aids in differential diagnosis. There is a particularly thorough résumé of all the laboratory aids related to this subject.

This volume is recommended highly for a thorough treatment of its subject. R. A. T.

RH—ITS RELATION TO CONGENITAL HEMOLYTIC DISEASE AND TO INTRAGROUP TRANSFUSION REACTIONS by Edith L. Potter, M.D., Ph.D., Assistant Professor of Pathology, Department of Obstetrics and Gynecology, The University of Chicago and the Chicago Lying-In-Hospital. The Year Book Publishers. Chicago. 1947. Price $5.50.

This book is written by one of the few physicians who has made a painstaking study of this now "popular" disease. The book covers the obstetric, pathologic and pediatric phase of this blood dyscrasia and is one of the few books that is worth while studying.

While there is much to learn regarding the Rh factor and some that is thought to be known but which later probably will have to be discarded, this book to date is the best and most complete one that has been published.

E. L. D.



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3. Warner,[2] in a study of 500 cases in private practice, concludes that the combined technique is the most efficient method; there was no case of unexplained failure.

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[1]Human Fertility 10: 25 (Mar.) 1945.

[2]Warner, M. P.: J.A.M.A. 115: 279 (July 27) 1940.

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BOOK REVIEWS

Doctor, Don't Let Me Die!, by S. S. Keiner, Collaborator: Dan Gorden. Meador Publishing Company. Boston. 1947. Price $3.50.

A passionate outcry, covering 486 pages, against medicine as an individual enterprise, where the financial gain of the physician and not the well being of the patient is the primary goal!

The book is well written and easily read. The author apparently has long carried his grievances deep within himself and finally has cried out his crusade in print. His advocation for patient care and understanding is his entire theme. Many a physician reading this book will need stop and carefully consider his own actions as the author accurately and truthfully types him.

Many of the book's chapters, i.e., "Caesarian Section," "The Prostitute," "Internes Aren't Dogs," "Quack Quack," to mention only a few, will leave lasting imprints on the reader's mind.

It is a book, not of science, but of kindness and understanding of those whom we all see daily—the patient.

Recommended highly as a standard for one to measure his own attitude toward the practice of medicine.

R. B. B.

Bone and Bones, Fundamentals of Bone Biology, by Joseph P. Weinmann, M.D., College of Dentistry, University of Illinois, Formerly at School of Dentistry, Loyola University, Chicago, and Harry Sicher, M.D., School of Dentistry, Loyola University, Chicago. With 289 Illustrations. C. V. Mosby Company. St. Louis. 1947. Price $10.00.

"Bone is a tissue. Bones are organs." This introductory definition strengthens the prosaic title of this fascinating text. It is stimulating and thought provoking. To review it with the aim of inspiring all interested in scientific medicine to read it, one must adhere strictly to the contents.

The first chapter is concerned with bone tissue which consists of two permanent elements, specialized cells and intercellular substance. The cells are known as osteocytes. The intercellular substance is composed of fibrils and a calcified cementing substance. Two types of cells are observed during active stages of bone destruction or formation only and are therefore termed "transient" elements of bone tissue as distinct from its permanent elements. The cells which are active in bone formation are known as osteoblasts, while those causing resorption of bone are osteoclasts.

Growth of bone tissue always occurs by the addition of new bone tissue to free bone surfaces. There is no interstitial bone growth.

The second chapter develops bones. A bone as an element of the skeleton, consists of different tissues. In the simplest case (for example, lacrimal bone) the bone is a plate of compact bone enveloped by a differentiated layer of dense connective tissue, the periosteum.

After this simple example, the chapter runs the gamut of the entire skeleton from the viewpoint of development, construction, blood and nerve supply, function and mechanics. Its perusal leads to an understanding of normal phenomena of growth and of proper classification of some diseases of the skeleton.

The ensuing chapters are packed full of factual "bone and bones." Developmental disturbances and adaptational deformities, generalized and localized, are described and depicted.

An example of compensatory deformity of bones is the change in the vertebrae and ribs in scoliosis caused by paralysis of the dorsal muscles. Scoliosis, too, can serve as an example of skeletal deformity caused by congenital malformation, a habitual posture and traction from scars.

Endocrine influence, some examples of which are gigantism, acromegaly and pituitary dwarfism are considered.

Vitamin and mineral effects are discussed.

Healing of bones, for instance, after a fracture or after extraction of teeth, occurs by formation of new bone tissue. During the healing of fracture, six stages can be observed: (1) clotting of blood of the hematoma, (2) organization of the blood clot, (3) formation of fibrous callus, (4) formation of primary bony callus, (5) formation of secondary bony callus, (6) functional reconstruction of the fractured bone.

Necrosis of bone and inflammation of bones followed by tumors of the skeleton bring this book to a close. The authors, a pathologist and an anatomist, each with a working knowledge in the others field, have succeeded in producing a work which is informative to every branch of medicine. F. E. M.

Occupational Diseases of the Skin, by Louis Schwartz, M.D., Medical Director, United States Public Health Service, Chief Dermatoses Section; Associated Clinical Professor of Dermatology and Syphilology, New York University; Adjunct Professor of Dermatology and Syphilology, Georgetown University. Louis Tulipan, M.D., Clinical Professor of Dermatology and Syphilology, New York University, College of Medicine, New York City; Consulting Dermatologist, Manhattan General Hospital; Associate Visiting Dermatologist and Syphilologist to Bellevue Hospital. And Samuel M. Peck, B.S., M.D., Dermatologist, Mt. Sinai Hospital, New York City; Medical Director, Inactive (R) U.S.P.H.S. Second Edition, Thoroughly Revised with 146 Illustrations and a Colored Plate. Philadelphia: Lea & Febiger. 1947. Price $12.50.

Into every phase of medicine have appeared new problems for which war has been responsible. This is notably true in the field of dermatology. Men and women placed suddenly in constant touch with material unfriendly to the human skin has added new tasks and generally broadened this field many fold. Agents such as oils, dyes, alkalies, fumes, heat and friction constitute a very large portion of industrial hazards. Since much of this type of injury is so clearly occupational compensation boards are burdened with cases and insurance companies gravely taxed. From the battle field to the dye plant, thousands of cases have "stood in line" to register their complaints. In the treatise under consideration, figures are given showing that 20 per cent of all skin diseases are of occupational origin.

The authors have apparently laid much stress on classification—a much needed aid to teachers and clinical workers. Care in history taking is stressed and unscrupulous efforts by irregular and incompetent medical advisors emphasized. The role of the malingerer is also discussed. A very complete outline of causation and treatment is offered. It is pointed out that the most common error is overtreatment; unfriendly drugs which increase rather than decrease the victim's discomfort is a point to be seriously considered. The time element should be made clear from the start; the almost complete lack of specifics increases the hardships for both doctor and patient.

The book carries 964 pages with 47 chapters. Chapter 47 is devoted to a list of known chemical skin irritants, a total of 350 agents. Diagnosis, treatment and prognosis are fully discussed. A helpful bibliography is appended and many illustrations accompany the subject matter.

The work is timely and authoritative. In scope, it is complete and its plan of arrangement makes it available to teacher, student and physician. E. P. M.

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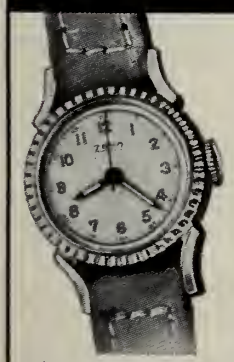
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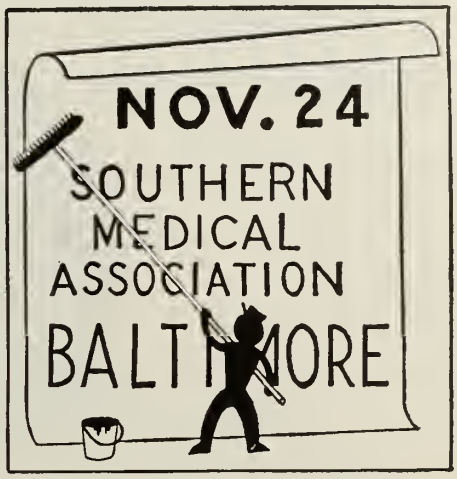
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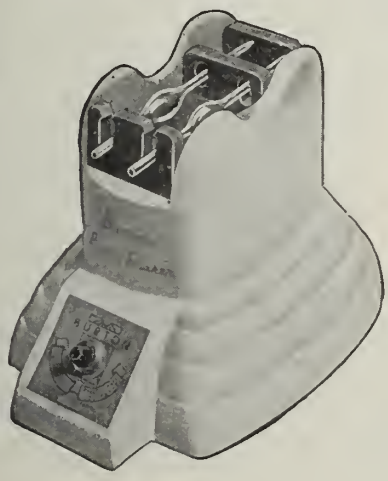
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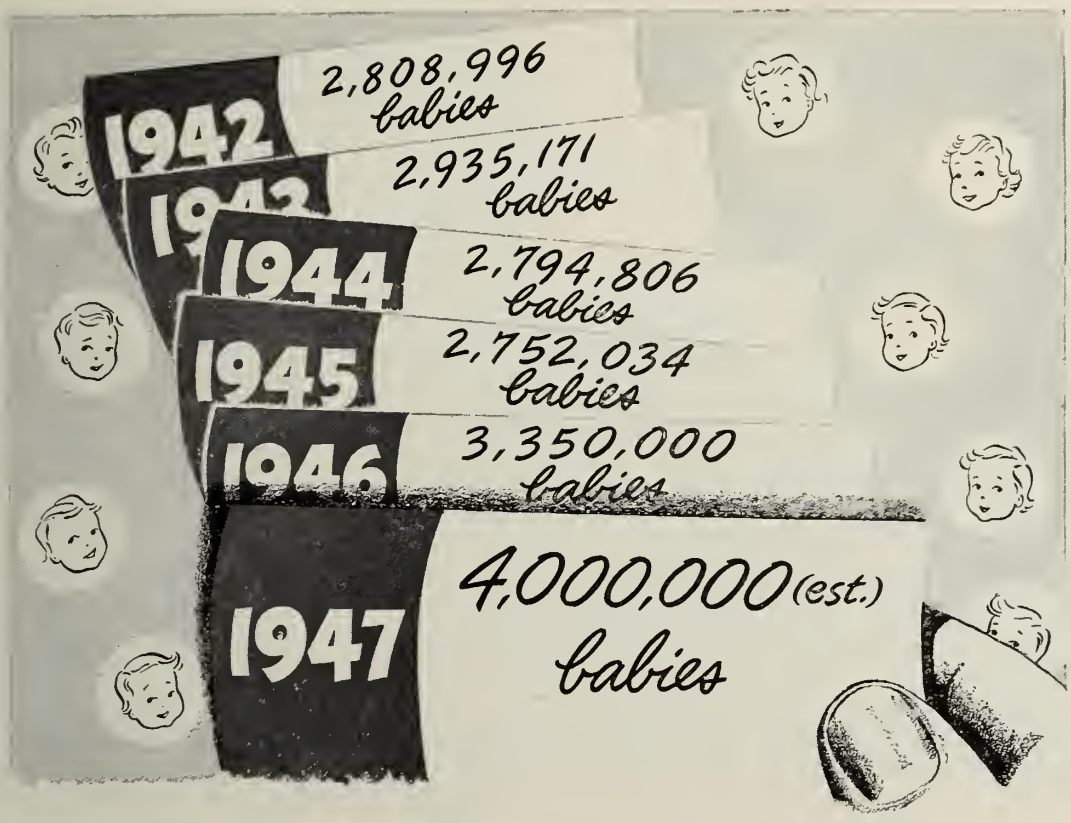


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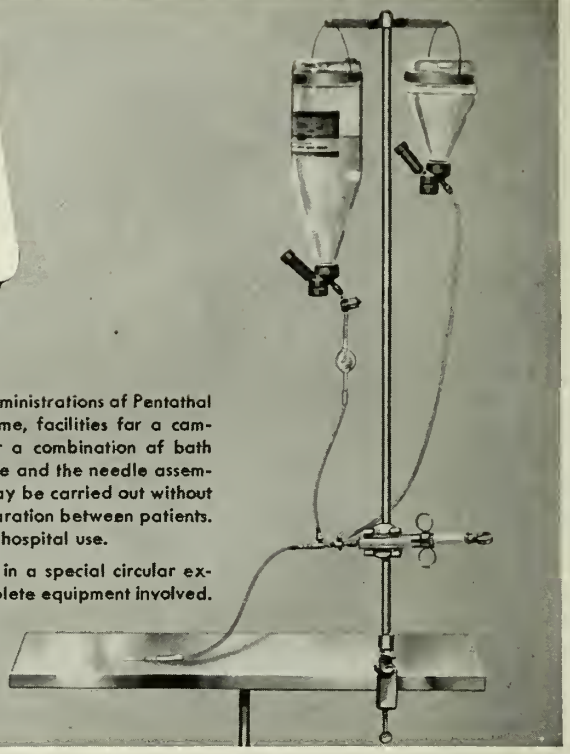
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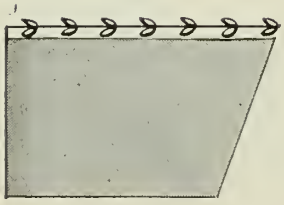


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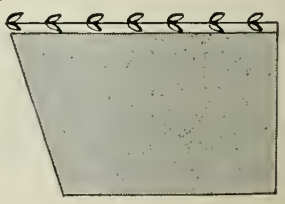
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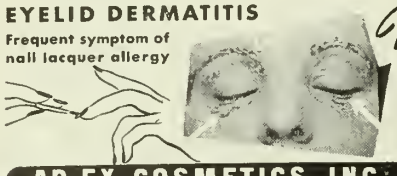
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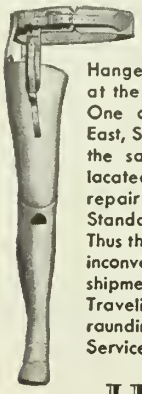
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INDEX TO ADVERTISERS

Abbott Laboratories 796
Aloe, A. S. Company 852
American Meat Institute 794
Ames Company 818, 819
Ar-Ex Cosmetics, Inc. 858
Arlington Chemical 853
Ayerst, McKenna & Harrison 799

Borcherdt Malt Extract Co. 858
Borden Company 851
Burroughs Wellcome & Company 821

Camel Cigarettes 801
Camp, S. H. & Company 848
Chicago Medical Society 862
Ciba Pharmaceutical Products, Inc. ..... Insert
Coca-Cola Company 849
Commercial Solvents Corporation 788
Cook County Graduate School of Medicine 837

Denver Chemical Mfg. Company 850
Duncan Laboratories 861
Durex Products, Inc. 797

Faith Hospital 854

General Electric X-Ray Corporation 825
Glenwood Sanatorium 797
Gougelman, Paul, Company 841
Gradwohl School of Laboratory Technique 860
Greb X-Ray Company 798
Griner, A. J., Company 849

Hamilton-Schmidt Surgical Company 858
Hanger, J. E., Inc. 860

Isle, W. E., Company 854

Lilly, Eli & Company ..... Insert
Lov-e Brassiere Company 856
Luzier's Inc. 859

M & R Dietetic Laboratories, Inc. 857
Major Clinic Association 789
Massachusetts Indemnity Insurance Co. 841
Mead Johnson & Company 864
Medical Protective Company 838
Milwaukee Sanitarium 827
Miscellaneous Announcements 862
Mosby, C. V., Company 802
Mullen Ambulance Company 854

National Pathological Laboratory 862
Nestle's Milk Products 843
Norbury Sanatorium 852
North Shore Health Resort 860

Parke, Davis & Company 786, 787, 855
Philip Morris & Company 795
Physicians Casualty Association 837
Pogue, Mary E., School 858
Producers Creamery Company 837

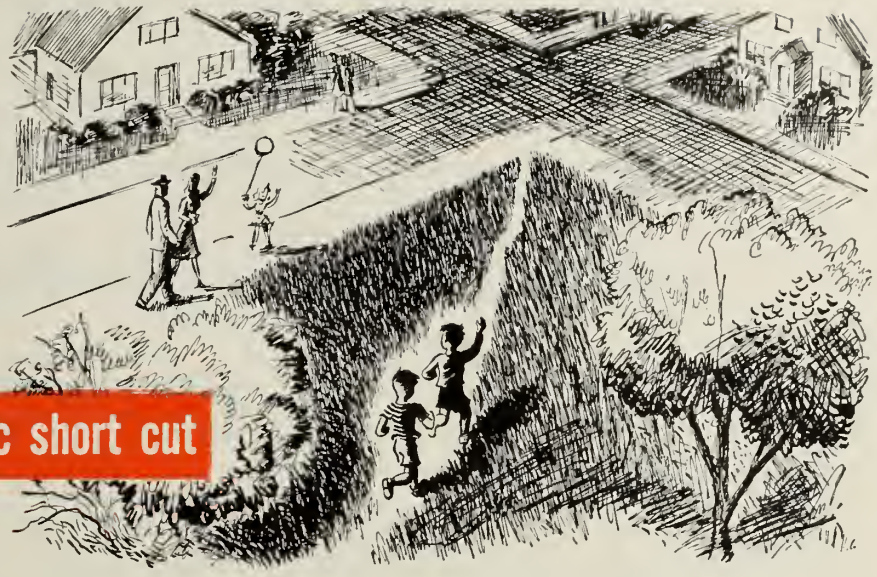
Quincy X-Ray & Radium Laboratories 858

Ralph Sanitarium 800
Robinson Clinic 854

Schering Corporation 823
Schmid, Julius, Inc. 845
Searle, G. D. & Company 815
Smith-Dorsey Company 833
Smith, Kline & French Laboratories 835
Southern Medical Association 847
Spencer, Inc. 841
Squibb, E. R. & Sons 791
Stearns, Frederick & Company 863
Stokes Sanitarium 862

U. S. Brewers Foundation, Inc. 830
Wallace Sanitarium 854
White Laboratories, Inc. ..... Insert
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1. Editorial: J. A. M. A. 121:346, 1943
2. Nadal, J. W.: Northwest Med. 46:444, 1947
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4. Brunschwig, A., Clark, D. E., and Corbin, N.: Mil. Surgeon 92:413, 1943

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(Contents Index Page 869)

INDEX NUMBER

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CONTENTS

Symposium on Poliomyelitis—

An Analysis of One Hundred Cases of Poliomyelitis. Asa Jones, M.D., and Frank D. Dickson, M.D., Kansas City, Mo. 881

Speculative High Points on the Cause, Immunity, and Pathology of Poliomyelitis. Ferdinand C. Helwig, M.D., Kansas City, Mo. 882

Diagnosis and Treatment of Poliomyelitis. Russell J. Blattner, M.D., Houston, Texas..... 886

Treatment of Poliomyelitis in the Recovery and Residual Phases. H. R. McCarroll, M.D., St. Louis 888

Criteria for Diagnosis of Psychosomatic Symptoms. George Saslow, M.D., St. Louis 894

Postrheumatic Arthralgia. Maurice B. Roche, M.D., St. Louis 896

A Lawyers Comments on Medical Testimony in Medicolegal Cases. John G. Madden, M.A., B.C.L., LL.B., Kansas City, Mo. 900

Congenital Absence of Vagina. Robert J. Crossen, M.D., St. Louis 903

Book Reviews 906, 912

Editorials—

Annual Sessions 908

Medical Care 908

Medical Service 908

Need for Pneumothorax and Pneumoperitoneum Treatment 908

Health in United States, First Half of 1947..... 909

News Notes 909

Deaths 910

Miscellany 910

Society Proceedings 911

Woman's Auxiliary 912

Index to Volume 44..... 915

Entered as Second-Class Matter, February 18, 1925, at the Post Office at Fulton, Mo., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1003, Act of October 3, 1917, authorized July 30, 1918. Business Office, 1201-5 Bluff St., Fulton, Mo., and 623 Missouri Building, St. Louis, Mo., Editorial Office, 623 Missouri Building, St. Louis, Mo. Return postage guaranteed. Printed by The Ovid Bell Press, Inc., Fulton, Mo.

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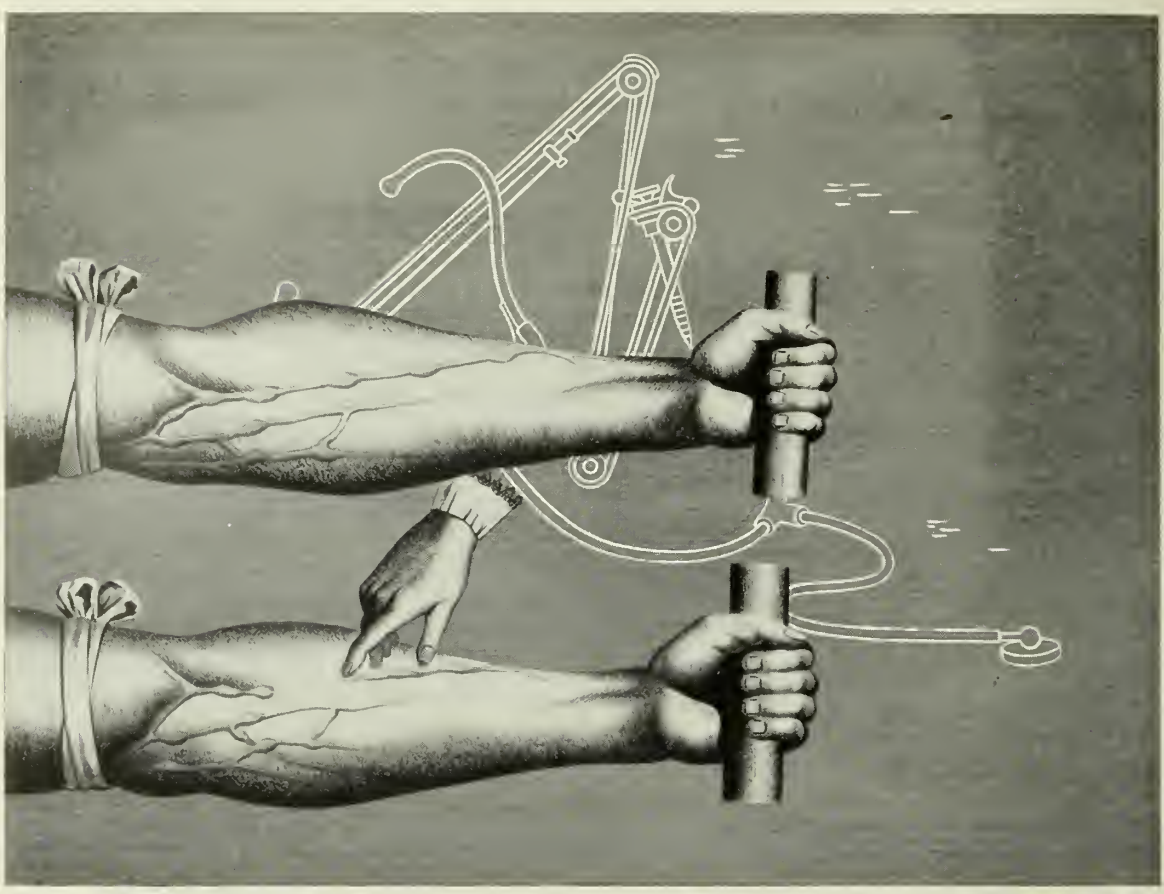
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SYMPOSIUM ON POLIOMYELITIS

AN ANALYSIS OF ONE HUNDRED CASES OF POLIOMYELITIS

ASA JONES, M.D.
AND
FRANK D. DICKSON, M.D.
KANSAS CITY, MO.

This report is based on an analysis of 100 cases of acute poliomyelitis admitted to the St. Luke's Hospital, Kansas City, Missouri, during the summer and fall epidemic of 1946.

Of the 100 cases treated, sixty-nine were from rural Missouri and Kansas and the remaining thirty-one were from Kansas City. Forty-eight cases were males and fifty-two were females. The age range of this series was from 2 months to 49 years. Sixty-eight per cent of the cases were less than 10 years of age.

The cases were treated under strict isolation for the first twenty-one days of the illness. All patients were put in beds with thin, firm mattresses and head and foot boards. No attempt was made at specific treatment, supporting and symptomatic measures being applied. The fluid balance was watched carefully.

All affected limbs and backs were supported in a neutral position and hot moist packs were applied from eight to twelve times during the twenty-four hour period during the acute illness. As soon as the temperature returned to normal, carefully supervised physiotherapy and muscle reducation were instituted and a period of treatment was carried on daily.

After the isolation period, the patient was moved to the general ward, the hot packs and physiotherapy treatment being continued until the patient either recovered or showed no signs of further improvement.

All patients were examined carefully daily during the acute stage and biweekly during the subacute or convalescent stage to prevent deformities and contractures and to record a current muscle chart.

Twenty-eight cases were treated with prostigmine bromide and atropine during the acute stage. The doses ranged from 3 to 15 mg. of prostigmine by mouth or 0.5 mg. subcutaneously every eight hours. The drug had little or no effect as to the relief of symptoms, the comfort of the patient nor any apparent effect as to the lessening of the paralysis. The drug did produce some vomiting and tremors, which were relieved by its discontinuance.

Sixteen cases were treated with curare (intocostin). The drug was administered intramuscularly every eight hours, and a dose of 0.9 mg. per kilogram of body weight was given. Within twenty minutes of the initial dose of medication, all patients were relaxed and remained so until from twenty-four to seventy-two hours after the last dose was given. All cases were decidedly more comfortable while receiving the drug, but no permanent benefit on the paralyzed muscles was noted. The cases with laryngeal and intercostal paralysis were benefited definitely almost immediately. The respirations became deeper and more regular, fluids by mouth could be given and the production of mucus was decreased greatly.

The mortality in this series of cases was 9 per cent. The patients who died were ill an average of four and a half days. The ages of the patients who died ranged from 4 months to 49 years.

Six of the hundred cases were pregnant women, three of the six aborting from six weeks to three months after the onset of the illness. One patient delivered a normal baby; one is still carrying a pregnancy; one died and was delivered by cesarean section. The infant was three months premature and died after eight hours. Pathologic study of the brain stem and cord of this infant revealed normal tissues.

Presented at the 89th Annual Session of the Missouri State Medical Association, Kansas City, March 30-April 2, 1947.

There were eight cases of pure bulbar type of paralysis of which two died. The remaining six are normal. Nine cases had a bulbar and spinal paralysis of whom five died, three are improved and one is normal.

Seven cases had facial paralysis, six patients recovered to normal and one is unimproved.

At the end of four months' observation and treatment sixty-one patients are normal with no residual paralysis, thirteen patients have slight residual paralysis and are still showing some improvement, sixteen cases will be rather severely crippled with extensive paralysis and one case has a facial paralysis with no apparent improvement.

The following table shows the recovery in involved extremities in forty-three patients who had paralysis during the acute state. This shows the condition at the end of four months.

Table 1. *Recovery in Forty-three Patients.*

		Recovery				
	Original Paralysis	Normal	Good	Fair	Poor	Flail
Paralysis of right upper extremity	8	3	2	1	2	0
Paralysis of left upper extremity	18	6	4	4	2	2
Paralysis of right lower extremity	19	8	3	3	5	0
Paralysis of left lower extremity	21	5	5	2	7	2
Total extremities paralyzed	66	22	14	10	16	4
Total upper extremities involved	26	9	6	5	4	2
Total lower extremities involved	40	13	8	5	12	2

DEDUCTIONS

1. From this experience, prostigmine is of little or no value in the treatment of acute poliomyelitis and produces some ill effects which are objectionable.

2. It is our opinion that curare has little or no beneficial effect on the paralyzed muscles, but we were impressed by its action in relieving the pain, muscle spasm and discomfort of the patient and its particular benefits to the laryngeal and intercostal types of paralysis through its apparent relaxing effect upon the muscle spasm.

1400 Professional Building.

SPECULATIVE HIGH POINTS ON THE CAUSE, IMMUNITY AND PATHOLOGY OF POLIOMYELITIS

FERDINAND C. HELWIG, M.D.

KANSAS CITY, MO.

Last year a book containing 672 pages and listing 8,320 references was published under the title "A Bibliography of Infantile Paralysis 1789 to 1944." Many of these 8,320 items refer to more than one article and practically no attention is paid to textbooks, medical systems, encyclopedias or routine official publications. Thus, one may gain a faint impression of the unbelievable amount of work expended on this subject, as well as the complete futility of even scratching its surface in the period of thirty minutes allotted for this obviously superficial coverage of such a monumental problem.

Presented at the 89th Annual Session of the Missouri State Medical Association, Kansas City, March 30-April 2, 1947.

From the Department of Pathology, St. Luke's Hospital, Kansas City, Missouri.

THE VIRUS

The virus of poliomyelitis has been reported variously as ranging from 300 micromillimeters down to 8 mu. in diameter. The latest studies employing the most purified suspensions, give figures from 8 to 25 mu. Another interesting feature about the virus is that under normal circumstances it apparently carries a negative electric charge. Because the virus is eliminated in large amounts by way of the gastrointestinal tract in recently infected individuals, its resistance to various substances and abnormal conditions has been studied widely. It seems to be quite resistant to numerous agents and has been kept for as long as eight years in glycerol in the cold. Ether does not destroy it nor do many contaminating microorganisms. In water and milk at room temperature, it survives for periods up to a month or more, and much longer when refrigerated. It is reported to be inactivated by heat between temperatures ranging from 50 to 55 degrees Centigrade for thirty minutes. Four parts of chlorine per million will destroy it in turbid water in twenty-four hours, while .5 parts per million, which is higher than the concentration usually employed by municipalities for making water potable, has not been found to destroy the virus in one and one half hours but did in four hours. These figures on chlorine do not necessarily mean that municipal chlorinization is not effective, since dilution, oxidation, sunlight and soil as well as filtration processes are frequently at work and must be taken into consideration. Ultraviolet is also quite effective in destroying the virus. Virus badly contaminated by other microorganisms was first demonstrated to be capable of purification by the addition of ether without injury to the virus. This discovery has furnished a valuable method for isolation from feces, sewage and other highly contaminated sources without recourse to filtration which greatly decreases the quantity of the virus. The agent also can be isolated by adsorption on aluminum hydroxide and subsequent elution of the virus by sodium phosphate and later concentration by dialysis and evaporation in valuo. Ultrafiltration also has been employed. Furthermore, the chemical method of Stanley has yielded a non-crystalline but highly purified and active agent. Ultra-centrifugation and lyophilization also have added greatly to ability to preserve and concentrate the poliomyelitis agent.

CULTIVATION OF THE VIRUS

Sabin and Olitsky have cultivated the poliomyelitis virus in human tissue successfully. They were fortunate in obtaining two cesarean delivered young fetuses and they found they thus could grow the virus on living nervous tissue. After three transplants using central nervous tissue, they transferred the agent to monkeys.

Because of the expense in maintaining a monkey colony, great enthusiasm greeted the report of Armstrong in 1939 when he first transferred the Lansing strain (obtained from a fatal case of bulbar poliomyelitis in Lansing, Michigan) to the cotton rat and later to white mice and then again back to monkeys. Jungblut and Sanders apparently have adapted the New Haven SK strain to the cotton rat and then to mice.

In 1939 both Gildemeister and Sabin cultivated the virus of poliomyelitis in minced brains from 10 to 12 day chick embryos but the chorioallantoic membranes of fertile hen eggs have not until quite recently been inoculated successfully. Shultz and Enwright at Stanford University, however, using the Murine SK strain successfully carried it through fourteen egg passages without evident diminution of virus content. Its multiplication was associated with a high incidence of death in the embryos. Since the publication of this article in October 1946, they also apparently have successfully cultivated the Lansing strain on fertile hen eggs. This is a remarkably important advance and another very useful tool for investigating the virus may now be at hand.

STRAIN VARIABILITY

It has been recognized for many years that different isolated viruses of poliomyelitis demonstrated variable degrees of adaptability and virulence for the monkey. Moreover, immunologic differences in many strains have been demonstrated repeatedly over the last fifteen years. By neutralization, reinoculation and cross-immunity studies, this manifest strain variability, it seems to me, has been demonstrated amply. Furthermore, of even more significance is the striking difference in infectivity when the virus was inoculated by different routes. Thus, some are very active when inoculated in the skin and others by the subcutaneous route, whereas these strains were not so potent when injected intracerebrally. Also, some strains have been successful in producing the disease when introduced into the gastrointestinal tract. With most strains, however, this latter route has yielded negative results. The epidemiologic importance of these observations needs no comment.

NATURAL IMMUNITY

Natural immunity is one which is independent of any previous contact with a disease. Not infrequently, as in other infectious diseases, this type of immunity in poliomyelitis seems to be related to and variously conditioned by such factors as sex, species, age, climate, nutrition, heredity and physical constitution. Thus, boys are apparently more susceptible than girls. No domestic or laboratory animals, with the exception of monkeys, cotton rats and mice, are apparently susceptible, whereas all races of mankind are. Although the disease is most prevalent in infancy and childhood, in certain epidemics the incidence in adults has been as high as 30 per cent. In the tropics, paralytic poliomyelitis is much less frequent than in temperate zones. Virus diseases including poliomyelitis do not appear to be influenced by nutritional states, in the same manner at least as are many other infectious diseases, and many investigators have gone so far as to suggest that healthy individuals are more susceptible than are unhealthy or malnourished ones. Much has been written regarding constitutional characteristics and susceptibility to poliomyelitis and both Draper and Adcock suggest that some of these susceptible characteristics are influenced by hormonal imbalance. The latter investigator has stated that women in the last month of pregnancy show a decreased resistance to infection. He states further that castrated female monkeys are more readily infected by the intranasal route than are normal monkeys.

ACTIVE IMMUNITY

Second attacks of poliomyelitis, although very rare, do occur and at least twenty or perhaps twenty-five authentic cases have been recorded. One patient who was studied carefully, had suffered from three attacks of the disease. Although, as Stills has stated, since recrudescences of the disease may occur up to three months, these instances therefore should not be considered as second attacks. After twelve weeks, an immunity appears which lasts a minimum of two years, he says. Since there are no laboratory tests for poliomyelitis, the diagnosis between this disease and other neurotrophic virus diseases must be left up to the clinical acumen of the physician; and in the absence of an epidemic, a diagnosis of nonparalytic second attacks of poliomyelitis usually is questioned. Nevertheless, by the same reasoning, the occurrence of abortive or secondary nonparalytic attacks may be even more common than has been thought in the past. It has been demonstrated repeatedly that monkeys recovering from an attack of poliomyeltis produced by intracerebral inoculations of one strain of the virus may be infected by the same route employing a different strain, and in some instances even by a homologous strain.

PASSIVE IMMUNITY

As long ago as 1910, after the disease first had been transferred to monkeys, antibodies which neutralized the virus were demonstrated in their blood. Antibodies in human sera from recovered cases were observed the same year. Rosy expectations for specific therapy immediately arose. Unfortunately, these anticipations have been entirely without fulfillment to date. One fruitful result, however, has been to find that about three fourths of all adults in urban communities without known exposure possess these neutralizing antibodies, whereas it has been shown in some surveys that only about one fifth of adults in rural sections possess them. Many observers consider that this high incidence in cities indicates immunity from virus contact and that possibly it explains the apparently greater rate of poliomyelitis in this group. There

are many discrepancies in these evaluations and confusing figures sometimes tend to upset these statistical data.

Shaeffer and Muckenfuss give an even higher figure, stating that from 75 per cent to 80 per cent of all adults in various parts of the world, regardless of occurrence of obvious cases of paralytic poliomyelitis, show neutralizing antibodies. Most newborn infants, and usually when the mother has these neutralizing antibodies, show them. During the first two years of life, the antibodies tend to disappear, then gradually reappear so that a large majority of individuals has circulating antibodies when they reach adult life even though they have shown no evidence of having had the disease. Moreover, these antibodies occur with as great frequency when no epidemic has been observed as when one was present. Obviously the exact role of neutralizing antibodies in resistance to and recovery from poliomyelitis infection is unknown. It is a well established fact that individuals with large amounts of neutralizing antibodies can become victims of the disease, and convalescent monkeys without neutralizing antibodies may be refractory to reinfection. Furthermore, both monkeys and humans can recover from the infection and it may be several months before such antibodies appear in the serum. All attempts to prove nonspecific immunologic factors have been most disappointing. All of these conflicting results have led some observers to feel that neutralizing antibodies are only biproducts of infection and play no active role immunity. However, no other type of antibody has been found despite extensive work on the subject.

With the bright hope for serum immunization dashed to the ground, investigations by many scientists were launched in an attempt to produce active immunity by employing various viral preparations. Thus, active virus, dessicated, heat attenuated, formalin, phenol and aluminum hydroxide treated preparations were all employed. With these various preparations, monkeys were inoculated by many routes but the results to date have been none too promising. So far most attempts to vaccinate children with modified virus strains have at times been followed by tragic paralyses. Certainly no protection could be claimed for these experiments. Light to moderate protection against the disease has been reported by several different workers using injections of immune sera on monkeys prior to the paralytic stage. However, little or no success has been observed when the injections were made during the incubation period or after the onset of symptoms. In the human, convalescent serum has been employed widely with very conflicting results in many carefully controlled series. Antisera prepared from horses and other animals have been anything but impressive in their abilities to act either as prophylactic or therapeutic agents.

PATHOLOGY

In spite of an unbelievable amount of investigative work utilizing both experimental and human material, the exact portal of entry of the virus of poliomyelitis into the body has as yet not been determined. My own pathologic studies of the fatal human cases in the recent epidemic as well as in previous epidemics, has tended to substantiate those of recent investigators which suggest that the portal is probably not by way of the olfactory nerves. In no case in a recent series or in any previous series has any evidence of olfactory nerve involvement been demonstrated. The investigations of Sabin and Ward, as well as others, studying both human and experimentally induced monkey infections, have shown the virus to be present in many locations. Sabin and Ward demonstrated it in the tongue, posterior pharyngeal wall and at various levels in the small and large bowel. In monkeys which were fed by the virus, they recovered it from almost the entire gastrointestinal tract as well as the liver, spleen, certain lymph nodes, kidneys, urinary bladder, and, at the time of paralysis, from the blood; but at no time could they isolate it from the cerebrospinal fluid. Furthermore, they found it distributed in the central nervous system in monkeys in a manner similar to that in human beings. However, demonstration of virus in these situations does not mean necessarily that the port of entry is in these tissues for its presence there might signify only elimination of the virus by means of centrifugal spread from infected nervous tissue.

At the present stage of knowledge, it would seem that the central nervous system is probably involved by passage of the virus along axone pathways. This hypothesis has been strengthened greatly by the investigative work of Fairbrother and Hurst, Howe and Bodian, and many others, and even more recently by Faber and Silverberg. Certainly it is the predominating opinion today that the virus is neurotrophic, involves the neurones and not the neuroglia, and extends from one area in the nervous system to another along axis cylinders. The investigations by Faber and Silberberg of the peripheral and central nervous systems of eight fatal cases of acute poliomyelitis, on which exhaustive histologic studies were made, appear significant. Their findings are consistent with the hypothesis that the virus enters the mucous membrans through superficial nerve fibers, travels by neurones to peripheral ganglia, and from thence into the central nervous tissue to involve connecting centers. It was their impression that there was more evidence for entrance of the virus through the upper alimentary and respiratory tract than through the lower alimentary tract. They think the pharynx a frequent primary portal. Sabin considers that the bulbar type of the disease arises from the upper alimentary tract, reaching the central nervous system by way of the fifth, seventh, ninth and tenth cranial nerves whereas the primary spinal type, he and Ward think, reaches the cord through the visceral

afferant fibers from the intestine by way of the posterior root ganglia. Faber and Silverberg have produced some evidence that the primary lesion occurs in the peripheral ganglia. They demonstrated "lesions also suggesting primary invasion through the sympathetics resulting in an initial involvement of cord at the spinal level whereas all other channels described by them showed the primary involvement at the level of the brain stem (midbrain, pons and medulla)." However, they state that "in neither instance does the level of initial involvement necessarily determine the site of the initial paralysis."

Findings in cases I have seen are in accord with these views. The majority of cases at St. Luke's Hospital were of the bulbar type and the most extensive neural lesions were found in the medulla and cervical cord with a progressively decreasing involvement as we descended in the spinal cord in many instances. This was by no means universally true, however. In one case with extensive cerebral involvement, the lesions were absent or minimal in the cord. In the spinal type, I likewise have observed some cases in which there was diminishing involvement as the cervical cord was ascended. The neuronal lesions in these cases, as with most other observers, showed the damage to be most striking in the large motor cells of the anterior horns. The internunciate cells did not show the degree or percentage of damage described by Kabat and Knapp in their series in Minnesota. Moreover, as with other observers, the cord lesions in our series were by no means confined to the anterior horn areas. Since our cases were all fatal, they are obviously unsuitable for explaining some of the more puzzling features of the nonfatal cases; namely, the mild and transitory paralyses and the problem of muscle spasm. Transitory paralyses have been investigated rather extensively by Sabin and Ward in monkeys inoculated with recent human virus strains of not too high virulence. In their animals they found first of all that "under certain circumstances the host may achieve an equilibrium with the virus before a sufficient number of nerve cells are destroyed to produced paralysis and the monkeys do not need all of their anterior horn cells for apparently normal function." They observed remarkably extensive destruction of anterior horn cells in nonparalyzed animals which were sacrificed from ten to fourteen days after the onset of the acute episode. In these animals, all of the degenerative Nissel changes and presence of Covel inclusions were observed. Monkeys of the same category which were sacrificed at a later stage showed marked and complete destruction of anterior horn motor cells at certain levels together with definite poliomyelitic inflammatory reactions and degeneration in the nerve roots corresponding to these levels. These animals did not show paralysis and they interpreted these findings somewhat as follows: "(1) when actual destruction of lower motor neurones occurs, the segmental distribution of the lesion may be so spotty as to not affect the major innervation of a given muscle; (2) the virus need not necessarily destroy all the affected neurones but produces only partial degeneration from which the cell may recover." They think that possibly a similar situation exists in those cases in which the monkeys recovered spontaneously from a definite paralysis. Moreover, they found virus present in the spinal cord in animals sacrificed several days after apparent recovery. These animals exhibited classical poliomyelitis cord lesions. In contrast to some of the older ideas regarding the inflammatory exudate and edema as agents producing transitory paralysis by interfering with nerve cell function, they found that pronounced edema "was rarely encountered in the absence of extensive neuronal destruction while extensive cellular infiltration might be present in the absence of paralysis and usually persisted long after the disappearance of the paralysis."

The question of muscle spasm, of course, has come into great prominence recently and the explanation has been propounded that the lesion responsible for the symptom of spasticity was found in the region of the spinal cord which supplies the local reflex mechanism. Others have attributed the hyperirritability of the stretch reflex to possible irritation of the muscle, nerve, posterior root or meninges by the virus. Others have blamed lesions of sensory neurones in the posterior horn as well as in the sensory ganglia, and Kabat and Knapp have suggested that internuncial lesions are to blame. Bodian in a recent contribution states that "the pathologic changes in both experimental monkey inoculations and in human material" which he has studied" were not of sufficient magnitude to be of primary importance in producing the generalized spasticity so common in acute poliomyelitis." In two monkeys of a recent series and two in a previous series which were sacrificed in the preparalytic period when marked spasticity was present in the muscles of the legs as well as elsewhere, he could find "no lesions in complete serial sections of the lumbosacral cord" and in one case he was "unable to find any virus in the lumbosacral cord. However, in all cases, severe lesions were present in most of the brain centers usually involved in neuronal destruction, being especially severe in the midbrain, tegmentum, reticular formation of the hindbrain and in the vestigial nuclei." He concludes that these lesions alone could produce the spasticity.

Sabin and Ward have described four stages in the degeneration of the large motor cells of the anterior horn of the cord somewhat as follows: (1) chromatolysis and acidophilic intranuclear inclusions; (2) acidophilic necrosis; (3) invasion by polymorphonuclear leukocytes; (4) complete neuronphagia. It is Sabin's opinion that the first three stages of this process are entirely reversible and only in stage four is the destruction final and the process irreversible. Sabin thinks this reversibility can serve as a pathologic basis for the remarkable

clinical recoveries from early paralyses which are so common. In our cases, all of these lesions were observed but since ours were fatal cases obviously no such deductions could be made. My own studies of anoxic ganglion cell damage, however, have led me to the conclusion that when acidophilic necrosis and polymorphonuclear invasion occur, the process is irrevocably irreversible.

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DIAGNOSIS AND TREATMENT OF POLIOMYELITIS

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The treatment of poliomyelitis cannot be set down in any dogmatic fashion. A completely open-minded approach must be maintained toward the therapeutic problems of poliomyelitis as well as toward the pathogenesis and natural history of the disease. It is well to emphasize that since the majority of patients infected with poliomyelitis virus never become paralyzed, any therapy can give good results in those patients who would recover no matter what the treatment employed. Thus objective study of the extent of muscle involvement must be made in each individual case in order to evaluate the clinical response to therapeutic measures. The most important findings in poliomyelitis are muscle paralysis and paresis. The lesions of the anterior horn cells explain the motor deficiency, ranging from pronounced paralysis to slight weakness. Damage to the neuron can be partial and reversible or destruction of the neuron can be complete and irreversible. Pathologic involvement of other portions of the nervous system, the internuncial neuron in particular, accounts for clinical findings which might be difficult to explain solely on the basis of anterior horn cell changes. The following summary from Moldaver constitutes an adequate explanation for spasm and pain. "'Spasm' is not an entity but a complex phenomenon. It is the result of a combination of the normal stretch reflex, meningeal irritation of the posterior roots, increase of the normal tonus in healthy and strong muscles or muscular fibers opposed to weak or paralyzed muscles, lesions of dorsal root ganglions and posterior horns. Pain is a common symptom in acute poliomyelitis. This is a referred pain which is increased by stretching of the muscles."

General measures which are applied routinely in the care of any acutely ill patient are required for patients with poliomyelitis. Administration of fluids, blood and plasma transfusions and good nursing care are all essential in the treatment of infantile paralysis. Therapy with chemotherapeutic agents and antibiotics has failed to modify the clinical course of this virus disease. No conclusive results have been reported with convalescent serum, whole blood, pooled plasma or immune globulin. In general, it is thought that once the virus has attached itself to the cell no amount of neutralizing antibody will modify, or interfere with, the pathologic process. The patient with respiratory involvement presents a definite and serious problem and usually life-saving measures must be taken in the care of such a patient. Bennett classifies the types of respiratory failure as follows:

Extent of ultimate recovery of functional capacity depends on (1) the amount of residual damage in the central nervous system, (2) the ability of the patient to use what is left undamaged.

I. Save life of patient in respiratory failure.

1. In the bulbar type, involvement of cells of the respiratory center in midbrain, no treatment is helpful. Breathing is jerky and totally irregular.

2. In the bulbar type, deglutition muscle involvement, postural drainage and removal of secretions from nasopharynx are indicated.

3. In the spinal type of acute anterior poliomyelitis, respiratory difficulty is due to weakness of muscles of inspiration, and has a gradual onset with respiration rapid and shallow but perfectly rhythmical. A respirator to complement and not completely supplement the muscles of respiration should be used.

4. In the spinal type of acute anterior poliomyelitis, due to persistent contraction or "spasm" of the muscles of expiration—intercostals, abdominal muscles and long muscles of the back that attach to the ribs, hot packs and a respirator to relieve fatigued muscles of inspiration should be used.

II. Relieve pain by release of all tightness in muscles and joints. Prevent musculoskeletal deformities. Faulty alignment of body segments results in distortion of bones and joints and fibrous contractures of muscular and ligamentous tissue.

III. Coordinate muscle function. Use every available muscle fiber.

IV. Increase muscle strength.

V. Increase functional activity.

VI. Evaluate functional capacity.

VII. Surgical apparatus may be necessary.

Only the most expert medical and nursing care can save many of these patients. In some instances no therapy will be of avail.

Recent emphasis on the presence of muscle spasm and pain has directed the efforts of clinicians toward relief of these symptoms and signs. Various forms of therapy are used, such as the Kenny hot pack, warm baths and infra-red. Various drugs have been used, principally neostigmine and curare. Neostigmine is thought to act by interfering with the function of the enzyme, cholinesterase. This enzyme is responsible for rapid splitting of acetyl-

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choline. By inhibiting cholinesterase, neostigmine allows acetylcholine to accumulate to a greater extent than normal at synapses, parasympathetic nerve endings and myoneural junctions. The most significant effect of neostigmine in the treatment of poliomyelitis is relaxation of muscle spasm. In my experience with the dosage used, no striking effects of neostigmine on muscle spasm were observed. However, in a case of neuronitis striking effects were observed following the use of this drug. Curare, or intocostrin, has been advocated for the relief of muscle spasm. Conflicting reports appear in the literature. This drug acts by paralysis of the myoneural junction. In my experience results have not been striking although my impression is that spasm is reduced somewhat following its administration.

In general my plan of therapy has included those measures which tend to keep the muscles in the best possible condition in order that the muscles be in optimal condition for response to nerve stimulus when the nerve is able to establish its connection once more. Relief of pain, release of tightness in muscles and joints and prevention of musculoskeletal deformity must be considered as fundamental aspects of the early treatment of poliomyelitis. Orthopedic consultation should be sought early. Every possible aid must be given the involved muscles in order to keep them in optimal condition. Various means to this end have been employed: improvement of circulation by hot packs; passive motion of the extremities as soon as this can be done without pain; early attempts at active motion of the muscles must be considered; fixing the extremities in proper position so as to avoid faulty alignment of body segments; the prevention of deformities by the use of foot-boards, fracture boards under the mattress, sandbags, and other devices that serve to keep the patient's body in proper alignment. In some instances great help in maintaining proper alignment is secured by the use of posterior casts, particularly at night. The closest cooperation must be maintained between the medical man, the orthopedist, the physiotherapist and the nursing staff. The general physician or the pediatrician acts as the coordinator of all these phases of treatment. The more detailed and complex aspects of physical medicine must be given the attention of trained physiotherapists and orthopedic personnel. The use of casts and surgical apparatus, the coordination of muscle function, the estimation of changes in muscle strength, evaluation of functional capacity and detection of gradual return of functional activity with recovery require the judgment and knowledge of highly trained specialists.

It has been the impression of the Washington University group and the impression of the others that muscle fatigue during a time when poliomyelitis virus is present in the body of the patient does predispose to muscle involvement. There have been many cases suggesting that overfatigue of specific muscle groups predisposes to the involvement of those muscles. Possibly, the best observation of this kind is included in a report by Brown, Francis and Pearson which appeared in the Journal of the American Medical Association on September 8, 1945. In connection with this epidemiologic study of contacts, it was observed by stool examination that a patient harbored the virus of poliomyelitis nineteen days prior to the onset of paralytic disease. During the time just prior to the onset of paralysis the boy had participated in a canoe race, using his arms as paddles. Paralysis occurred in the upper extremities. From such observations it would seem that avoidance of muscular fatigue during a period when cases of infantile paralysis are present in a community might reduce the number of paralytic cases by preventing some of the so-called abortive cases from becoming paralyzed.

The relation of tonsillectomies to the incidence of paralysis in poliomyelitis has been stressed. Op-

Table 1. *Spinal Fluid Findings in Virus Encephalitides and Related Conditions*

Type	Spinal Fluid				Virus Isolated	
	Cell Count	Per Cent Polymorphonuclears	Sugar	Protein	From Blood	From Spinal Fluid
von Economo	50-500	Few	Normal	+	None	None
Eastern equine	1000 or greater	60 to 100	Normal	+	None	None
Western equine	150	20	Normal	+	Early	Early
Japanese B	100	Few	Normal	+	Yes	Yes
St. Louis encephalitis	100	Few	Normal	+	Once	None
Russian	200	Few	Normal	+	Yes	Occasionally
Tbc meningitis	20-500	Increased early	Low	+		Web (organism stained)
Non-paralytic poliomyelitis	20-500	Few	Normal	+	Once	
Lymphocytic choriomeningitis	1000+	20	Normal	+	Yes	Readily isolated
Lead encephalitis	5-40			++++		
Brain abscess	Variable; large increase	Preponderance				
Infectious neuronitis	4-6		Normal	+++		

erative procedures on the nose and throat during a period when poliomyelitis virus is present in this region seem to predispose to the development of serious bulbar symptoms. While this cannot be stated dogmatically, it does seem wise to perform elective nose and throat operations during a period of the year when poliomyelitis is not widespread.

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TREATMENT OF POLIOMYELITIS IN THE RECOVERY AND RESIDUAL PHASES

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The acute phase in the disease poliomyelitis ends when the temperature has finally subsided. The destructive process has at that time reached its maximum and any subsequent change occurring in the involved muscles will invariably be one of improvement. This is designated the recovery phase and may be subdivided further into the subacute and convalescent phases. The subacute phase passes into the convelescent with the subsidence of the pain and muscle tenderness. The time at which this takes place varies tremendously in different individuals. Since management of patients throughout these two phases is one of gradually diminishing the symptomatic and supportive measures and gradually increasing the activity of the affected parts and the patient as a whole, treatment for the entire recovery period will be considered without further subdivision. The recovery phase continues until maximum muscle recovery has occurred. When this point of recovery has been reached and no further improvement can be expected, the residual phase of poliomyelitis is entered. The time at which this occurs is also variable, but studies in most clinics indicate the recovery phase is invariably terminated after eighteen months. It may be safely added, however, that from a practical standpoint most recovery of functional value will have occurred by the end of six months. Seldom will any improvement after this time be sufficient to alter the prognosis or alter the degree of permanent disability which the patient must face.

THE RECOVERY PHASE

It is impossible to discuss the treatment of poliomyelitis without considering the underlying pathologic process which is responsible for the status of the muscles involved. With the passing of the acute illness, the effect of the virus on all organs and tissues apparently disappears with the exception of the central nervous system. Here also the effect of the virus disappears with the exception of damage to the motor columns of the spinal cord. For the ganglion cells of the anterior columns, the virus seems to have a specific affinity and may result in varying amounts of cell destruction. This lesion occurring in the motor ganglion cells is described by Sabin[1] as the "pathologic unit of poliomyelitis." The extent of destruction occurring in these cells is the sole factor which determines the degree of permanent muscle paralysis. There has been no proof that changes occurring in the skeletal muscles themselves result from primary involvement. Muscle pain, muscle tenderness, their resistance to stretch and the tendency at times to early contractures as well as reflex splinting of the part can be explained on the basis of secondary irritation and circulatory changes resulting from interference with the motor nerve supply and the subsequent rapid degeneration of the motor end plates. This knowledge of the basic pathologic lesion enables one at the onset to state with certainty that there is nothing to offer in treatment which will in any way alter the extent of the residual paralysis once this cell destruction has taken place.

A review of the medical literature of the forms of treatment recommended for poliomyelitis shows that all have dealt with some form of physical therapy and shows also that there have been very few new contributions in recent years. A review of this type gives some insight into the state of confusion which has existed. Even though the world has been led to believe that the therapeutic use of hot wet packs is of recent vintage, one finds that Kellogg,[2] in his "Textbook on Hydrotherapy," published in 1903, advised its use and his statements are very similar to those used recently by Miss Kenny. I quote three short passages from Kellogg: (1) Page 792. "The material for fomentation may be a piece of an ordinary woolen bed blanket." (2) Page 793. "When very hot water is used, the cloths must be wrung very dry, otherwise there will be danger of blistering the patient." (3) Page 810. He specifically mentions anterior poliomyelitis in the list of diseases for which hot fomentations have been found useful. The use of hot wet packs also was suggested by Lovett.[3] Lovett,[4] in 1916, outlined a regime of treatment based on the use of heat, massage and muscle training in conjunction with some form of immobilization during the acute phase. Townsend,[5] in 1916, stated his best results in a New York epidemic were obtained in children kept in bed for at least one year. Judson,[5] in the same year, advised rest and fixation for from twelve to twenty-four months. During this same era, galvanic and faradic stiumlation of involved muscles was given thorough trial. Peckham,[6] in 1916, advised treatment in the acute stage by application of heat in order to obtain a fresh influx of blood to the paralyzed muscle. He recommended the use of a 500 watt electric bulb for twenty minutes followed by vibration for mechanical stimulation. Later the Hubbard tank was introduced and still later large warm water pools were used for under water therapy. The fact that a patient with extensive paralysis could walk in a pool was thought at the time to be the necessary stimulus to ulti-

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mate brace free ambulation. When, however, after considerable trial, the extensively paralyzed patient found that he could still not walk without support when outside of the pool, some of the enthusiasm for their use began to wane. The Kendalls,[7] in 1938, revived the idea of prolonged fixation and protection, accompanied and followed by muscle training. In 1940 Miss Kenny arrived in this country and her method of hot pack therapy[8] became the fad of the time under stimulus of publicity and propaganda disseminated principally through newspapers.

In recent years there have been two additional suggestions in the treatment of poliomyelitis which should be mentioned. The first is the use of prostigmine as advocated by Kabat and Knapp.[9] The second is the use of curare as described by Ransohoff.[10] The former functions through an alteration of the chemical change which occurs about the motor nerve endings in skeletal muscles on stimulation from a nerve impulse. The latter acts through an actual paralysis of the motor end plates. They may in certain instances alleviate pain and afford relaxation in partially involved muscles but they have no effect on the ganglion cells of the spinal cord and therefore cannot alter the degree of residual involvement which these patients show.

Because of the widespread publicity given the Kenny Treatment, it is essential that one give it some additional thought. Miss Kenny claims not only to have devised a form of treatment which will control the crippling after-effects of the disease, but actually to have given a new concept of the disease itself. This concept is based on muscle spasm, mental alienation and incoordination. Pohl[11] describes this as an affection of the peripheral structures, principally the muscles and their fascial coverings but including the skin and subcutaneous tissues, and he adds that disturbing functional changes in the central nervous system occur secondarily. Such an idea cannot be reconciled to the present knowledge of the proved pathologic process in this disease.

As to the actual value of the Kenny treatment, I have three sources of information on which to base an opinion.

First, I have recently received from Janes[12] of Rochester, Minn., the present results of 209 acute cases of poliomyelitis treated by the Kenny method at the Gillette State Hospital at St. Paul during the severe epidemic of 1946. These cases were treated under the direction of C. C. Chatterton, Chief of Staff of the Gillette Hospital, who granted permission to quote these figures. Of the 209 cases, 24 per cent already have been discharged apparently well or with only minimal weakness. Residual stiffness alone now remains in 9 per cent, 30 per cent show only varying degrees of muscle weakness and 36 per cent show complete paralysis of some muscles, either few or many. Assuming that all patients eventually recover completely except those in which some complete paralysis is now apparent, this would represent an over-all recovery rate of only 64 per cent, which is well within the possibility of spontaneous recoveries.

Secondly, it was my privilege to serve on a seven man committee appointed to investigate the Kenny treatment. In this study, we visited six cities and sixteen clinics and examined approximately 650 patients treated by the Kenny method. It was the opinion of this committee[13] that this group of cases was similar in every respect to any other group of poliomyelitis victims, regardless of the type of treatment which had been given.

Third, Pohl[11] published in 1945 the results of cases treated during the first five years at the Kenny Institute. A total of 364 cases were admitted to the Minneapolis Clinic and treated during that time. Of these, 23 died and 55 showed "extensive residual paralysis." This is a mortality rate of 6½ per cent, with an additional 16 per cent showing marked residual after-effects "varying in intensity from virtually complete incapacity to states requiring braces, crutches or canes for locomotion." (Visscher[14]) This is a combined mortality and morbidity rate of 22½ per cent and in addition many patients showed involvement of lesser degree. This percentage of recovery compares favorably with many other reports in the medical literature dealing with other forms of therapy (Lenhard[15]), and compares in the same way with others in which no treatment at all was used. Spontaneous recovery as high as from 50 to 80 per cent has been reported in some epidemics. When viewed in the cold light of their own figures, one has difficulty accepting the Kenny treatment as the epoch-making contribution it is supposed to represent.

All of these enumerated methods of treatment have come from the field of physical therapy; all are directed toward the secondary manifestations in the peripheral muscles and cannot possibly affect the basic underlying lesion in the motor cells of the anterior columns. Each method has risen to a position of importance, then declined in turn when the results fell short of the claims, only to have its place taken by still another brain child, also from the field of physical therapy. In the last forty years a complete cycle has thus taken place, and in reality it is starting all over again. Certainly physicians are no closer to the solution of the problem. At present there is no known means of altering the amount of nerve cell destruction which occurs and few attempts have been made in this direction.

In spite of the lack of ability to control the residual muscle involvement in poliomyelitis, one still treats these patients to insure comfort, prevent deformities and help the patient to use to best advantage the muscle function which remains. In short, these measures can be classified under the heading of symptomatic and supportive treatment. Let me then attempt to summarize briefly the various measures that should be considered in the management of the patient in the recovery phase of this disease.

1. *Comfort.*—The comfort of the patient should

be assured. In recent years, one has been led to believe that every patient with poliomyelitis in this phase of the disease writhes with pain. This is not true and the average patient is perfectly comfortable if they are allowed to lie quietly in bed. If they are not comfortable, the use of splints, heat and sedation, either individually or collectively, are justified and usually suffice. In those rare instances in which pain may still persist, the use of prostigmine or even curare may be justified. It should be remembered, however, that they are only of temporary benefit, have no effect whatever on the degree of paralysis and they should be used with caution since they are not without danger.

2. *Prevention of Deformities.*—The position of the patient and the involved extremities should be watched in an attempt to prevent the development of contractures and deformities. Keeping the patient flat and straight on a firm bed is usually adequate protection for the trunk. For the extremities, pillows, sand bags, splints or plaster casts may be used as indicated in order to preserve good functional position.

3. *Use of Respirator.*—The respirator may be necessary during the acute phase of the disease. Many lengthy articles have been written about the advisability of the respirator, when to and when not to use it. It may be simply stated that the respirator is indicated in any case in which the patient is unable to breathe or is exhausted from attempting to breathe in the presence of muscle weakness. In such an instance the patient will immediately conform to the cycle of the respirator, is obviously relieved, and the color will immediately improve. If the respirator is not needed, the patient will maintain his own respiratory cycle and will not conform to the cycle of the respirator; in short, the patient in such an instance actually fights and struggles against the respirator. The time at which one may attempt to discontinue the use of the respirator may be determined in the same way. When the patient is breathing out of cycle with the respirator, one may attempt to leave him out for short periods of time. These periods can be increased daily until he has gradually built up his strength to the point at which he can stay out of the respirator at all times. This is a classical example of increasing muscle power by active use when the nerve supply remains intact. If the nerve supply to the respiratory muscles does not recover (a very rare instance), the respirator must be continued in order to preserve life.

4. *Exercises.*—After the comfort of the patient has been assured and he can be moved without fear and without great pain, it is advisable to place him daily in a tub of warm water. Here the soothing and relaxing effect of the heat and the buoyancy of the water will permit him to begin more easily his active exercises. Also at that time, active and passive exercises are instituted with the patient in bed. Permit him to carry the various parts through as wide a range of active motion as is possible in order to reactivate the involved muscles. Increasing this activity from day to day, as the soreness subsides, furnishes the necessary stimulus for the gradual increase in power of these muscles. Passive motion is instituted simultaneously in order to preserve good joint motion and prevent the development of fixed contractures. For the extremities, the joints are carried through as great a range as the comfort of the patient will permit, and this is gradually increased as rapidly as possible.

For the neck and abdominal muscles, active exercises are instituted early and, for the trunk, active and passive stretching exercises are instituted and increased as the soreness and stiffness subside. This is done in order to maintain the flexibility of the spine and, in this way, attempt to prevent any tendency to scoliosis. This stiffness and tightness are transient in character and one can hope only to shorten their duration.

5. *Ambulation.*—The next necessary decision is when to make these patients ambulatory. The nonparalytic patient or the one with only mild involvement needs no special treatment and may be allowed up soon after the acute illness has subsided and as soon as the patient desires. For the patient with more extensive involvement, the time at which walking is permitted must vary with the individual problem. As soon as the comfort of the patient will permit, walking may be instituted. If the weakness in one or both legs is sufficient that weight bearing cannot be instituted safely without additional support, a brace should by all means be applied first. The brace is continued unless recovery in the extremity is such that weight bearing and walking are made possible without the need for outside support. The American people recently have been bombarded with propaganda against the use of braces. Many patients today are using crutches in one form or another in order to walk with one flail leg without a brace when the addition of a brace would permit them to discard the crutches and free their hands for gainful occupation. The brace is still one of the most important therapeutic measures in the recovery phase of poliomyelitis and should be used without hesitation wherever indicated. It is continued throughout life unless there is actual or functional recovery sufficient to permit walking without support.

In the patient with marked involvement of the trunk and abdominal muscles, a corset type of support should be used. It is continued until the strength of these structures is adequate. During this period of support, active and passive exercises are used to maintain the flexibility of the trunk. In the moderately paralyzed patient, crutches also may be necessary to institute walking. In a relatively small percentage of cases the paralysis is so extensive that two leg braces, two crutches and a corset are required and even then ambulation may be extremely difficult and slow.

Permit me to repeat in summary that these measures are symptomatic and supportive in character and have no effect on the amount of residual pa-

ralysis which will occur. They should be used intelligently, but their use is not sufficient reason to think that the extent of the involvement or the extent of residual paralysis is altered. The degree of residual involvement is dependent on the extent of the initial destructive lesion in the spinal cord, and the die for this final picture is cast during the initial phase of the disease.

In recent years, prolonged hospitalization has become the vogue for correct management of the poliomyelitis patient. Once the acute illness has passed, most of these patients can be cared for equally as well in the home. The only exception to this rule is in the presence of extensive involvement in which a great deal of help is necessary in attempting to reactivate the patient. An intelligent and cooperative mother, with a few minutes of instruction, makes a competent physical therapist. It is not essential, therefore, that these patients be centered in highly specialized hospitals. Unless extensive involvement occurs, physicians doing rural practice can easily apply the simple therapeutic measures outlined and can manage patients in the home during this phase of the disease with every assurance that justice is being done. Prolonged hospital care for most of these patients is a needless waste of funds and utilizes scarce hospital beds which could be more intelligently used in other ways.

In completing my discussion of the treatment of this disease in its recovery phase, I wish to deplore the tremendous waste of funds, in recent years, in the extensive treatment of all patients with poliomyelitis. Many of these patients with mild or moderate involvement would be just as well off with no treatment whatever. Large sums of money have been raised for poliomyelitis work in this country and only a small percentage of this has been used for true scientific research work. The one hope for the ultimate control of poliomyelitis lies in its prevention and not in its cure. If more of the available funds can be directed into research channels in the fields of epidemiology and immunology, one can then, and not until then, entertain some hope of some day arriving at a solution to the problem.

THE RESIDUAL PHASE

The management of poliomyelitis in its residual phase is a highly specialized field of work and should be placed in the hands of adequately trained orthopedic surgeons. Attempting to reiterate all details, involved in solution of the numerous problems encountered, is a subject within itself and would prolong to the point of boredom a general discussion of this type. I shall simply state in summary, therefore, that treatment in this phase, in addition to continuing the support and apparatus necessary for ambulation, deals principally with reconstructive surgery which enables the patient to use to the best possible advantage that which remains. This reconstructive work may be classified under three broad headings: (1) the correction of deformities, (2) arthrodesis of certain joints for the production of stability and improved function, and (3) muscle transplantation for improved function and alleviation of deforming forces.

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DISCUSSION

E. Royce Bohrer, M.D., Jefferson City: The question of diagnosis of nonparalytic poliomyelitis is important in epidemics and is difficult. Also, I would like to ask concerning the question of immunity from one attack of poliomyelitis. I would also like to know the opinions on doing tonsillectomies during a time of poliomyelitis incidence.

Russell J. Blattner, M.D., St. Louis: I do not think that anyone can diagnose abortive poliomyelitis with certainty. So far as tonsillectomy and adenoidectomy are concerned, that question has been hashed and rehashed. It is known that many people harbor the virus in their bodies. It is known that the virus is present in the nasopharynx during the first week of the disease and that the virus is present in the intestinal tract many weeks after the onset. Therefore, there is a real possibility that when there is wide dissemination of virus in a community, some individuals might be harboring the virus in the nasopharynx. If operative procedures are carried out, there is definite evidence that virus can invade the central nervous system with symptoms and signs of bulbar involvement. Many tonsillectomies are done from January to May. During the winter and early spring these patients are protected with penicillin and sulfa so as to avoid bacterial complications. Some studies indicate that the incidence of polimyelitis and the cases of bulbar involvement will be the same whether tonsillectomies and adenoidectomies are done or not. However, if one happens to have a patient who had a tonsillectomy and adenoidectomy and seven days later develops bulbar poliomyelitis, one has some explaining to do.

Daniel B. Landau, M.D., Hannibal: It seems to me that one has to keep an open mind on this subject despite the pessimism that has pervaded the discussions this morning. The Kenny concept of the physiology of poliomyelitis does not have to be accepted. The statements made by her as to the incidence of paralysis obviously are erroneous and her condemnation of the use of the respirator is regrettable as in many instances its use has been the governing factor in survival. But it does appear to me that her popularization of the wet pack method does give something in favor of her work.

As Dr. McCarroll pointed out, the hot wet pack sys-

tem has been used, or advocated for a long time, but in the experience of many physicians it has been advised but seldom used until she popularized it; and from what I have seen, these children on whom it has been used have been much more comfortable than they were under the system used when I was in school.

Dr. Knapp at the University of Minnesota has charge of a great deal of work in poliomyelitis and it appears likely that in the next few years a great deal may be heard from that. He says that during the acute stages the quick fomentations advised by Miss Kenny are valuable and that this treatment should be begun at the earliest possible moment; that the shortening is most easily corrected during this stage.

I would like to ask Dr. McCarroll if he thinks it is advisable to put braces on those youngsters who have just slight weaknesses, who can get along and walk very nicely except for a slight limp. Can one expect any further improvement by the use of braces?

H. R. McCarroll, M.D., St. Louis: As far as the brace itself is concerned, the answer is no. As I stated in the paper, a brace is indicated in the presence of muscular paralysis or weakness and if the patient can walk without a brace there is no reason to tie him up with a brace. There is only one exception to this and that is the temporary use of a brace for protection of weak muscles during their recovery phase. If he has a flail leg (and a limp has nothing to do with the application of a brace, by the way,) and it is necessary to use a brace or crutches, the brace in my opinion is indicated.

Now, as regards the results of the Kenny treatment which Dr. Landau brought out, I do not think anyone would be foolish enough to say the Kenny treatment does any harm if used with a little plain common horse sense. It is good symptomatic treatment. It has no effect on the residual picture of these patients. The stiffness, the muscle spasm, all of the secondary manifestations which she has stressed are transient in character and disappear spontaneously whether one treats the patients or not. There is no question but that one saw patients in the work of this committee in which the spasm was prolonged by continuation of the hot packs. Patients were seen that failed to improve until the use of the hot packs was stopped, and there were enough of these to make one feel definitely that the use of the hot wet packs, in some instances at least, might be responsible for the persistent pain, tenderness and stiffness those patients showed. Regardless of what one uses in the treatment of this disease there is a lot of plain common sense that must go along with it. All it amounts to is symptomatic and supportive measures. One is not going to alter one iota the amount of residual involvement.

I would like to affirm the importance of Miss Kenny's work in the last few years; there is no question but that it has awakened everybody and has been a great stimulus in the study of this disease. On the other hand, it has been harmful in some respects. Every patient with poliomyelitis today expects to be hospitalized, expects to be placed in a highly specialized center, and expects to stay there for months, and spend somebody else's money for his care. They seldom pay for it themselves. It is comparable to the use of public funds. If something were being accomplished it would be well worth while but, in the majority of instances, the patient would be just as well off if they stayed at home and never saw a doctor.

Discussant: I have been confused by the presence of chorea during the epidemic of poliomyelitis, which was missed by diagnosing as poliomyelitis on the basis of spinal fluid findings. A child came back several months ago with obvious chorea. In regard to hospitalization, there are at the Mercy Hospital in Kansas City one hundred and twenty cases. Those hospitalized fell into three categories: the patient who recovers completely, no further hospitalization being necessary; the patients who were badly paralyzed and ended with severe residual paralysis, and those cases which had no real basis for hospitalization. The cases which have been kept in that institution were those who had moderate paralysis and in whom one could not be absolutely certain as to the eventual outcome. It has been felt that it was justified to treat those cases, not only because it was felt one could improve the patient, but because observation in the hospital helped determine the type of brace to be applied at the time of discharge.

Dr. Blattner: We have never been confused by the picture of chorea, probably because we have never been able to demonstrate changes in the spinal fluid. Dr. Hugh McCulloch, St. Louis, has designated rheumatic chorea as rheumatic encephalitis. We have never found any spinal fluid changes in those patients. I am interested in knowing what you found. What were the findings in the spinal fluid?

Discussant: As I recall this case we had a cell count of about twenty-five with a large predominance of lymphocytes and an increased protein.

The Chairman: Will Dr. McCarroll discuss the problem of what patients should be kept in the hospital.

Dr. McCarroll: I do not expect anybody to agree with me on my ideas of poliomyelitis. They never have and that does not matter. The best exercise for a muscle which is partially involved in everyday use of it. If a muscle has an intact nerve supply and some of its fibers remain intact, that muscle will improve in power. Every day physical therapy can be used, yes, and at the end of six months one takes credit for improvement for which credit is not due. If one turns that patient loose and lets him use the extremity, he will be doing far more in the development of it than with any other treatment. The only exception to that rule lies in the presence of what is known as a stretch paralysis. That occasionally is seen in the presence of a marked deformity, but is most frequently seen in the deltoid muscle where, in the normal resting position of the arm, the muscle is kept under the maximum degree of stretch. Everyone doing this work occasionally has seen a muscle which is weak and which has failed to respond show marked improvement in power when protected in a position of relaxation over a period of months.

Very few patients with poliomyelitis require prolonged hospitalization. For the average run of patients, to turn them loose and let them use the extremity is the best thing one can do for them. One will see this proven time after time in patients who have been kept in the hospital for two or three months during which time they see a physical therapist once a day for thirty minutes. One finally gets disgusted having the patient around and sends them home, to have them return three months later looking like an entirely different patient. The reason for this is that their every day use of the extremity has accomplished far more in its development than anything the physician can do. If physical therapy is indicated, this frequently can be carried on in the home by some member of the patient's family after a few simple instructions. A cooperative and intelligent mother makes an excellent physical therapist. She will work many times a day and not limit her work to one thirty minute period each morning.

The only patients with poliomyelitis requiring prolonged hospitalization are: (1) those with such severe and extensive paralysis that they represent a complete nursing problem; (2) those requiring prolonged use of the respirator, and (3) those rare cases with widespread associated peripheral neuritis in which pain and marked skin sensitivity last for prolonged periods.

William J. Fleming, Jr., M.D., Moberly: Last year in Randolph County there were about thirty cases of poliomyelitis, so-called, and there was a very good fund that took care of these cases. To my knowledge, there actually were two cases of poliomyelitis but there were twenty-eight other cases that were so diagnosed by

others who practice the healing art. These were given special attention and sent to a special hospital and given special Kenny treatment. All came back cured and well and the fund was depleted for that year. That is a point I want to bring up. In using these funds it would be nice if there might be some way to be sure that one is treating the condition that was supposed to be supported by these special funds.

DR. BLATTNER: I think that point is well taken. I emphasized that careful objective evaluation of muscle involvement is necessary before one can diagnose poliomyelitis with certainty.

DR. MCCARROLL: Dr. Blattner has pointed out that many other types of virus infections of the central nervous system often are confused with nonparalytic and preparalytic types of poliomyelitis. It is impossible to make a diagnosis of poliomyelitis in the absence of paralysis without extensive laboratory procedures, which are done in a very small percentage of cases. Assuming that one has a patient who has some type of central nervous system involvement that could also be a low grade encephalitis, transverse myelitis, the St. Louis type of encephalitis or any other type of virus infection of the central nervous system, if one classifies this involvement as poliomyelitis, every hospital expense of that patient will be paid by the National Foundation; every medical need of that patient will be taken care of and it will cost him not one penny. It is sometimes easier to give the patient the benefit of the doubt.

I would like to say that this fact in itself may well have something to do with the so-called increased incidence of poliomyelitis in this country in the last five years. The largest epidemic every known in this country occurred in the New England States in 1916. Even though the disease has tended to spread westward, I doubt seriously if the incidence of poliomyelitis today is any greater than it was then.

W. P. MCDONALD, M.D., St. Joseph: I would like to hear some discussion on the value or lack of value of public health measures such as the closing of swimming pools, churches and schools for the prevention or spread of poliomyelitis.

DR. BLATTNER: I think in order to answer that there should be a brief summary of what is known about the epidemiology or natural history of the disease. The virus has been isolated from the nasopharynx during the first week of the illness. It is known that it is present in the stool for two or three weeks up to eight or ten, or even months, after the illness. It has been isolated repeatedly from sewage. It has been isolated repeatedly from flies of various types during epidemic periods. Many people harbor the virus without clinical manifestation of illness. It is not known how it is transmitted. It is not believed that a blood-sucking vector, as the mosquito, tick or chicken mite, is involved. It probably is not transmitted through the olfactory route by droplets. It is probably an intestinal disease with an epidemiology which may be similar to typhoid fever. Therefore, if one is going to restrict activity one could accomplish very little because contacts, even casual ones, might result in dissemination of the virus. I do not think these dramatic measures that have been suggested have been particularly successful in preventing the spread of the disease. It has some value from a psychologic viewpoint in that it helps the community calm down from hysteria experienced during an epidemic. If their children get paralyzed, they feel that they have done everything they could. As far as swimming pools are concerned, chlorination and irradiation have not been successful in elimination of virus. I think that the fatigue and chilling from swimming might be more important in making the patient less resistant to invasion by virus harbored in the body.

A. B. JONES, M.D., St. Louis: Little has been said about the diagnosis of the disease. In my experience of thirty years one cannot diagnose preparalytic infantile paralysis. One may suspect it in the presence of an epidemic when one sees people, many people, not only children, but adults, who are ill with the systemic disease, that is similar to the disease—I mean the condition that one sees in the patient that later develops paralysis.

Nothing has been said about the type of paralysis. It is a flaccid muscle, not a spastic muscle. When one has spasticity, one does not have an acute infantile paralysis. This is an anterior horn cell disease in the main; other parts of the nervous system are involved but there is a predilection for the anterior horn cell, and when one has destruction of those cells one has flaccid paralysis. The distribution of the paralysis is always an important consideration in making the diagnosis.

In the upper extremities, in the main, the paralysis is proximal. In the lower extremities, it is more likely to be distal and, first, the paralysis selects a group of muscles, and it is asymmetrical, one muscle or group of muscles here and there or elsewhere or maybe only one or two muscles of a group involved; and the paralysis is flaccid, whatever spasm there is, is not in the paralytic but in the nonparalyzed muscles. The pain is in the paralyzed muscles in the main. The course, excepting the abortive cases (and I am using abortive in the manner in which Wickman used it, that is, a case that has paralysis, mild paralysis, or otherwise and it disappears) have residuals. The cases of poliomyelitis that I see always have residuals. It does not make any difference who treats it, how it is treated, how long it is treated, or what is done, there is some paralysis. So far as the paralysis is concerned, it is immaterial whether one prays or uses hot packs or splints, or otherwise, the residual paralysis is determined by the extent of the involvement of the anterior horn cells. So far as sending these people off to centers, every one that gets some sort of an illness is sent off to a center if he has some paralysis.

I had a case in 1936 that was very extensive and had residual paralysis. When the Kenny treatment came along, the St. Louis Chapter sent this child to Kenny and the child was treated for months and months, obviously there was no improvement. I agree with Dr. McCarroll, the residuals are determined by the destruction of the anterior horn cells. The mild cases would be much better off at home. I think it is bad medicine to try to collect all of these people in any one center and put wet packs on them. I have seen children that are very uncomfortable and I think, in the main, the packs may do harm rather than good.

F. G. PIPKIN, M.D., Kansas City: In regard to cell count, in Ferris' summary of the General Hospital cases he pointed out that the spinal cell count may be polymorphonuclear in character and it may be lymphocytic in character and it varies with the severity of a disease. Therefore, the character of the cells in the spinal cell count, in itself, was not significant. The second point I would like to make is that the diagnosis of the paralytic stage of the disease is made by knowledge of muscle anatomy, and one must go over the extremity and body with knowledge of the individual muscle groups and what they do.

INFANTS BORN WITH ADDICTION

Infants born to mothers who are morphine addicts show all the symptoms of a morphine addict whose source of supply has suddenly been cut off and if not properly treated may die of convulsions during the first week of life, according to an article in the November 8 issue of *The Journal of the American Medical Association*. The author is Meyer A. Perlstein, M.D., Chicago.

"The infants are born at full term and are apparently normal," Dr. Perlstein writes, "but their addiction matches that of their mothers. Separation from the maternal circulation shuts off the supply of drug to the newborn, and withdrawal symptoms ensue within three days."

CRITERIA FOR DIAGNOSIS OF PSYCHOSOMATIC SYMPTOMS

GEORGE SASLOW, M.D.
ST. LOUIS

In discussing criteria for diagnosing psychosomatic symptoms, it will help at the beginning if I describe how one understands the appearance of these symptoms. For example, a man suddenly loses his wife by death. The loss means a good deal to him and in the next days and weeks he shows certain changes from his usual pattern of life. He thinks a great deal about what she meant to him. He feels sad that she is gone. He loses appetite, complains of nausea, heart-burn, bloating. He may have colonic spasm or headache or other organ disturbances.

The sudden change in his life one may call a crisis. His reactions to this crisis include organ disturbances, emotional disturbances and thinking disturbances, in various proportions. At first he understands that he has undergone a crisis and readily attributes all his disturbances to it. As time passes some of the disturbances tend to drop out of the picture while others, just because they have remained, seem more prominent. Thus he may be less preoccupied with thoughts of his wife and he may be less sad. From time to time he may notice stomach disturbances such as heart-burn, indigestion, bloating or pain. If he is an acute observer he may become aware that his stomach disturbances are set off many times by a sudden memory of his wife, by noticing some article of her clothing in a closet, by looking at her picture, or by thoughts of an important anniversary and of how they used to spend that anniversary or Thanksgiving or Christmas. That is to say, his stomach symptoms may appear at a time when he is stimulated by a symbol which stands for the loss of his wife. This symbol may be a verbal memory or a visual one or one of many other kinds.

By the time he goes to see a doctor, the only complaint he may make is that of stomach discomfort. The important thing to learn from this example is that the stomach symptoms may occur not only at the time of actual crisis but also later on and can be set off by a large number of symbols which stand for that crisis. By the time a patient of this type goes to a doctor complaining of his stomach trouble, the other features of his reaction to the original crisis have become much dampened. Not only that, but it may be so painful to think of his dead wife that he soon becomes expert at keeping such thoughts and feelings out of his awareness and concentrates only on his bodily disturbances. It is, then, only the stomach disorder which he first brings to the physician's attention. It may recently have become increasingly severe and follows no definite pattern in relation to exertion, meals or type of food eaten. Nor does it follow a definite pattern with relation to what foods or medicines may relieve it.

If the man is middle aged or older, the doctor must consider a number of life-threatening possibilities. The doctor knows that histories of peptic ulcer or gastric cancer are variable. He must consider these serious possibilities first and try to establish whether or not they are present. Were he not to do this his patient would probably believe he had received insufficient examination. In the example given the doctor finds that he cannot establish the usual causes for stomach dysfunction as being present. He may have some reason to suspect that perhaps the symptom is of psychosomatic origin. By this he means, as has been indicated, that the symptom first appeared at a time of crisis in the patient's life and has kept on appearing either because the crisis has continued or similar crises have appeared, or because the patient frequently has been disturbed by symbols of the original crisis.

How can the doctor establish that such a crisis existed and resulted in the symptoms? He must first have some kind of picture of the patient's usual pattern of life before he became ill. This he finds out by asking the patient to tell him how he lived when he was well. Where was he living? With whom did he live? How did he get on with those persons? This is the type of questions the patient needs to answer. Then one asks the patient if there was any important change in this pattern of life around the time he became ill. Did his relations with some important person become difficult? Did he lose an important person from his circle? Was he worried about losing such a person because of illness? If the patient indicates that such a crisis did occur about the time of his illness the doctor then encourages the patient to tell him something about the crisis. Who was involved? What happened to that person? What did the patient do? These are typical of the questions to be asked. As the patient answers, the doctor listens carefully for statements of how the patient thought and felt in the crisis and what was happening to his body. If the patient does not mention how he felt he is asked: Was his appetite the same? Was his sleep the same? Did he lose weight? Did he have any aches and pains? One tries to make the questions as brief and as neutral as possible, and the more spontaneously the patient replies the more convincing is the evidence to him of connections between the crisis and his bodily complaints. When it has become clear to the patient that the symptoms, at least some of them, occurred in close time relation to a crisis in his life the doctor may then inquire if memories of that crisis are associated with the same kinds of symptoms. How does he feel when he thinks of that crisis, or if he gets a letter about it, or if he sees a picture of that person? What happens to his body when he thinks of the crisis? These represent the type of questions which will bring out any relation between symbols of a crisis and symptoms.

It will be clear from what has been said that the fundamental criterion for diagnosing psychoso-

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matic symptoms is a standard scientific one; namely, the regular association of the symptom with either a definable crisis or with a symbol of such a crisis. It is usually easy to establish that the crisis or the symbol of the crisis occurs before the symptom, although sometimes they occur together with the symptom. What is important is the regular association of the two within a brief span of time.

I have used as an example one of a very close time relation between psychosomatic symptoms and a crisis, the loss of a person by death. This is a common type of crisis in producing psychosomatic symptoms. I will mention another common type. There are many persons who find it difficult to differ with others or to take scolding or disapproval from them. When placed in such a situation they have frequent impulses to talk back or fight back but cannot do so. If such a series of events is repeated often enough they may have stomach disorder or headache or diarrhea, or one of a large number of other organ dysfunctions. When the patient comes to the doctor the symptoms are often so severe that he can pay attention to nothing else that goes on at the time. When the doctor conducts his usual examination and again comes to the conclusion that the symptoms may be of psychosomatic origin he conducts the line of inquiry already mentioned. He asks the patient to describe any change in his inter-personal relations and tries to get a play-by-play account of them. If it is a matter of a boss scolding a worker more than formerly the doctor asks the type of questions already indicated: "Give an example of one of these situations and the way they begin. Who talks first—what he says and what you say. Tell me what you feel like saying but do not. When you feel like 'blowing off' or fighting back but do not, what happens to your body?" It is in reply to such a question that the patient may realize that when he feels angry but suppresses his anger, his body functioning is changed and he may have stomach discomfort or other symptoms. Suppression of resentment is one of the most frequent sources of psychosomatic symptoms involving almost any organ in the body.

I have so far given examples of an immediate relation between a psychosomatic symptom and a crisis or symbol of a crisis. These examples represent the simplest situation of this kind. Here is an example of a slightly more complicated one.

A woman has a quarrel with her 'teen-age daughter who wishes more latitude than the mother thinks proper. The mother goes to sleep and awakens at 5:00 a. m. with what she calls an attack of paroxysmal tachycardia. She pays attention to her rapid heart rate but, on questioning, the doctor discovers she has many other symptoms. These include hyperventilation, headache, increased sweating, frequency and urgency of urination, fear of death by suffocation. Taken all together these symptoms constitute what is called an "anxiety attack," a condition which is generally of psychosomatic origin.

What I wish to bring out is, that in the psychosomatic symptoms of this particular woman, her symptoms did not occur just at the time of the difficulty with her daughter but some hours later. Nor was this delayed occurrence noted only once. She had noticed this hundreds of times in relation to similar crises or quarrels over some thirty years.

Examples of this sort may be even more complicated. A well known one involves the sudden appearance of tachycardia, anxiety attacks, colitis, headache or other symptoms in mothers after their sons return safely from military service. Such mothers would bear up well while their child was away, and might even be praised by others for unusual fortitude. When the emergency was over and the son was back safely, various psychosomatic symptoms might appear. It seems possible then for persons to be under considerable emotional stress for fairly long periods of time, and suddenly suffer organ dysfunction at a certain point, either when the stress is definitely over and there is no need to maintain control, or when the capacity to maintain control has been passed.

Here is another complexity to the diagnosis of psychosomatic symptoms. Not only may there be an interval of from several hours to a few days between an actual crisis and the appearance of symptoms but, in addition, it is well known that when certain organs of the body have been disturbed in their function, as the stomach, the disturbance may out-last by some time the originating cause. It has been shown that if a man is threatened with the loss of his job, some time during the day, his stomach function may be changed markedly immediately and the change may continue through apparently sound sleep even after he has been reassured that the threat was made as part of an experiment. Thus a crisis may set off a psychosomatic symptom, but when the crisis is over the symptom may continue for some time.

There are still more complex sequences of events to be considered. For example, a young social worker's marriage was broken up by her parents. This occurred in the fall of one year. For the next six or seven years she regularly had severe respiratory infections late each fall. On two occasions these episodes were of virus pneumonia. As the significance of her broken marriage became apparent to herself and her doctor, it appeared that the following sequence of events took place regularly for a number of years. As the anniversary of her marriage approached she became very much preoccupied with memories of it, resentment against her parents and the like. She fell behind in her work, did not keep up with her records, and it became noticeable that she would be at work evening after evening until 10:00 or 11:00 p. m. She would take less and less time out for meals during the day and evening, her work began to run through her head while trying to go to sleep and she became more and more restless through the day. After several weeks of this she would begin to run a fever and end up with a respiratory infection. This occurred at times not related to epidemics of respiratory in-

fection in her place of work. Once she became ill, she would recover unusually slowly; she would go through a long period of depression about having let her employers down, would wonder if she should go into some other field, and thus would have to be granted unusually long sick leaves each year.

She had paid no attention to the early symptoms of insomnia, loss of appetite, restlessness and preoccupation which might have served as warning signals of possible increased vulnerability to respiratory infection. When she did learn how to pay attention to these warnings and to discuss her preoccupation immediately when it occurred, the sequence of events I have described was broken for the first time and has remained so for three years.

There are other complex examples of relations between psychosomatic symptoms and a person's life situation. They need not be discussed here but all of them, as well as the simpler ones, boil down to the fundamental principle I have mentioned. That principle is the chief criterion for the positive diagnosis of psychosomatic symptoms; that is, bodily dysfunction which may have something to do with the way a person lives. The criterion is that one must demonstrate a regular and close association in time between the symptom in question and an actual crisis in a person's life or between the symptom and symbols of such a crisis. When one gets into the habit of looking for this criterion, one is amazed at the ease with which it can be brought out spontaneously by patients. One is amazed also by the fact that more than 90 per cent of the patients in whom the criterion is present show it in its simplest form; that is, an immediate time relation between the symptom and the crisis or symbol thereof.

640 S. Kingshighway.

BEE STINGS NOT GUARANTEED TO HELP ARTHRITIS, SAYS JOURNAL

The common belief that bee stings will illeviate the symptoms of arthritis isn't pure superstition, according to the answer to a query published in the November 8 issue of *The Journal of the American Medical Association*, but bee venom therapy cannot be recommended on the basis of the evidence now available.

"Bee keepers have been said to be immune to arthritis and they have been known to dispense the stings of their bees to the sick," *The Journal* says. "In Europe, places existed where rheumatic patients made pilgrimages for the sake of bee sting treatments. The natural venom of the bee contains a poisonous substance similar to cantharidin and a sapotoxin somewhat similar to that found in snake venom. The physiologic effects produced by injections of the venom of bees are said to be analogous to the effects of administering histamine.

"The experiences of American physicians with bee venom therapy of arthritis have been varied. Some have been optimistic but, as most of the optimistic reports were based on uncintrolled studies, the results have not been widely accepted. . . . Untoward reactions to bee venom therapy are fairly common. . . . On the basis of the evidence available at this time, bee venom therapy cannot be recommended. It is not now in use in any of the representative larger American rheumatism centers."

POSTRHEUMATIC ARTHRALGIA

MAURICE B. ROCHE, M.D.
ST. LOUIS

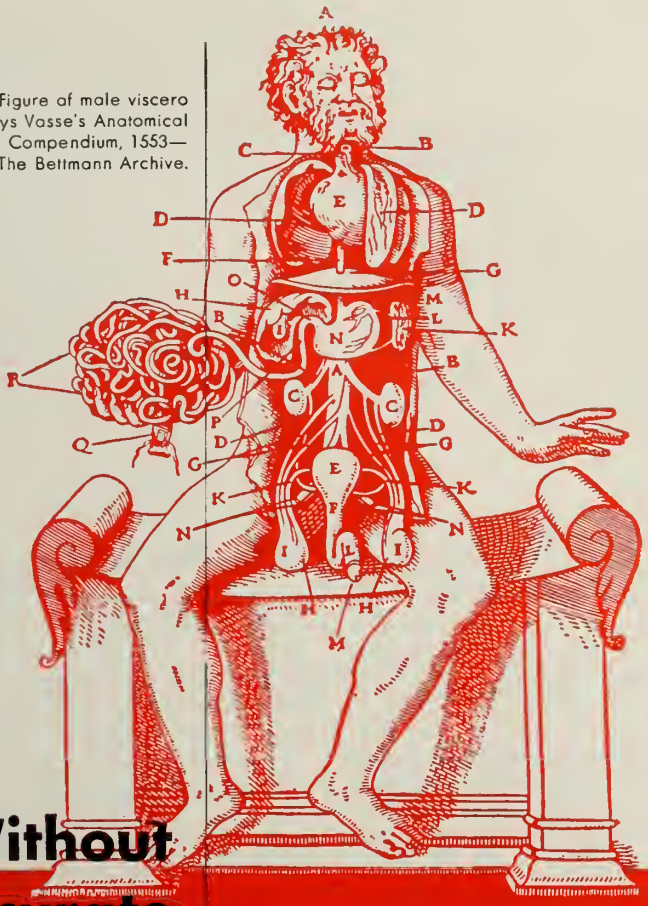
The convalescent phase of the treatment of rheumatic fever is long drawn out in severe cases. Its length is indeterminate depending upon the duration of physical signs, abnormal laboratory findings and persistence of symptoms. Enforced bed rest and, to some degree, generalized immobilization may be unavoidable over months without interruption. When all the findings have cleared, then only is the period of bed confinement brought to an end, and the patient allowed to begin a graduated program of activity. It is in the latter phase, when the patient becomes active, that the symptoms of arthralgia may persist.

Heading the orthopedic department of a Naval Hospital at which research in rheumatic fever was being carried on, the opportunity to see hundreds of these cases in consultation over almost a year's period of time brought to my attention this complication many times. While the department at the time was receiving more or less directly from overseas intermittent loads of war casualties from the South Pacific area, some 253 rheumatic fever cases were seen in orthopedic consultation in 1945.

The months of 1944 and part of 1945, during which the cases under consideration occurred, had an active war background. The rheumatic fever patients, some in the acute stage but most in the chronic or convalescent stage, were being gathered in by hospital trains and ambulance planes from the training centers in the Great Lakes and East Coast localities, with a fair proportion from the West Coast. They were of the men that were being intensively processed through the training camps for active duty on the various fighting fronts and represented casualties, most of which would remain so in the face of persistent symptoms. They fell into the age group from 20 to 30 years and represented a depletion, however relatively small, from an important segment of the military personnel.

In the course of the many months during which the orthopedic assessment of these cases was carried on, interesting facts as well as interesting lesions were brought to light. It became evident that during the course of the general physical examination incident to induction (prior to the onset of rheumatic fever), many skeletal conditions had gone undetected. Many of these patients came down with the disease during the course of their boot camp training and the subsequent bed rest further masked these undetected lesions. Two factors served to make these nonrheumatic lesions symptom-producing: the intervention of a generalized inflammatory disease involving the musculoskeletal system as well as the circulatory system, and prolonged periods of bed rest. When, therefore, the patient ended his period of enforced recum-

From the Department of Surgery, Washington University School of Medicine.



Anatomy: Figure of male viscero from Loys Vasse's Anatomical Compendium, 1553— Courtesy, The Bettmann Archive.

Without accurate knowledge... of human anatomy and physiology, without stethoscope or electrocardiograph, it is small wonder that physicians of the 16th Century were helpless before many of the conditions for which present day medicine possesses efficient treatment.

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*Searle Aminophyllin contains at least 80% of anhydrous theophylline

bency and entered the phases of increasing physical activity, there was existing an acute stage of musculoskeletal decompensation. With such a situation, any heretofore undetected bone lesion might now become symptom-producing.

A rather outstanding example of this was the instance of a 24 year old officer convalescing from a severe attack of rheumatic fever. While most of his symptoms had subsided, enforced bed rest had been continued because of the persistent activity of pain in the lower part of his back. The man was of large and heavy stature and for the many months of his confinement had lain on an innerspring mattress. Roentgenograms of his lumbosacral area revealed a spondylolisthesis and bilateral spondyloschisis. He was fitted with a back support and, there being absent any contraindicating cardiac pathology, was started on limited activity. This lesion was unknown to the patient and was not remarked in any of his health record entries.

The poor posture evident in most of the cases in the early phase of limited activity cleared up satisfactorily under supervision. However, in the younger group, there was uncovered with relative frequency the round back which had for its underlying cause osteochondritis juvenilis, as demonstrated by roentgenograms. These cases, like the instance above, continued to complain of backache in spite of routine salicylate therapy. The Hauser lumbar flexion plaster was used in their treatment and satisfying results were obtained.

There were several instances of backache which carried on through the phase of salicylate therapy and persisted in the face of continued normal sedimentation rates, white counts and such during the early phase of limited activity. Referral and examination of these men revealed the characteristic findings of Marie-Strumpel arthritis (spondylitis, ankylopoietica): limitation of movement in the cervical region, in the respiratory movements, and the poker-like stiffness of the dorsolumbar spine.

In some of the older patients there was roentgenographic evidence of hypertrophic spondylitis. There was the occasional previously undiagnosed compression fracture of the twelfth thoracic or first lumbar vertebra apparently of long standing. One instance of painful neck in a 19 year old man revealed on roentgenographic examination a Klippel-Feil syndrome. So-called "myalgic spots" or nodules in the back muscles were seen infrequently.

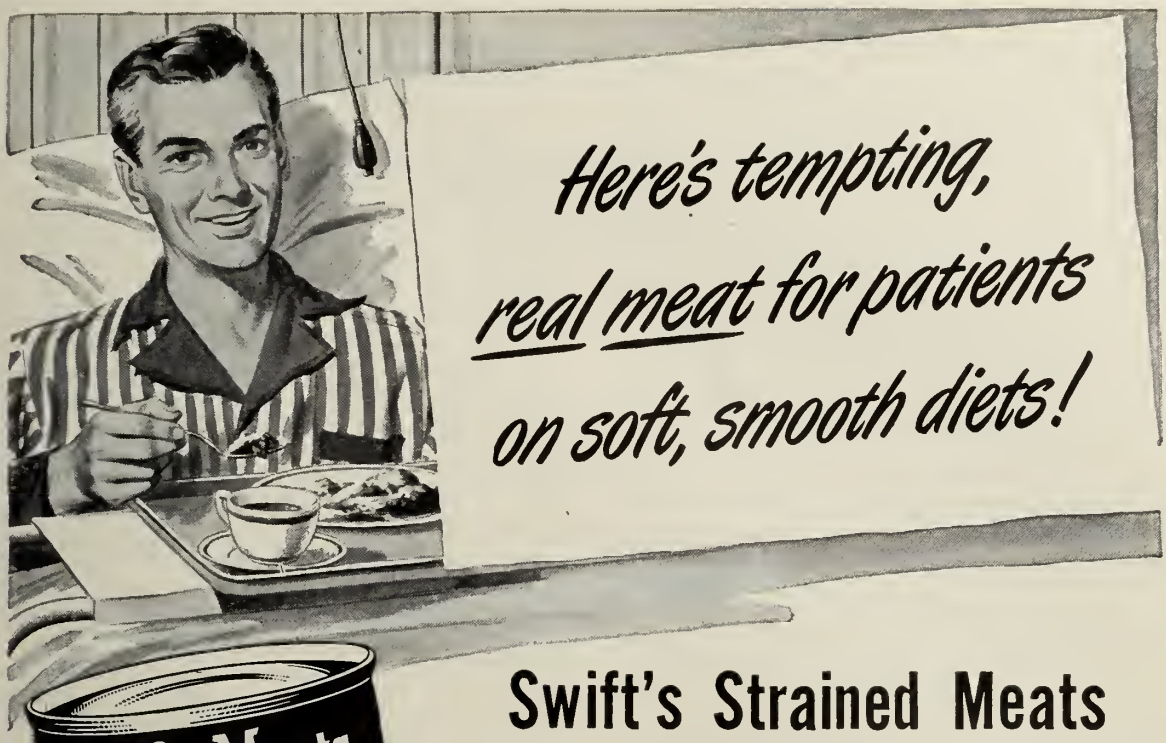
There was one patient sent with the strong implication that he might be malingering. He had been complaining of pain in his right shoulder although his laboratory findings had long since returned to normal. Every sort of medical therapy had proved ineffective. Examination revealed inability to abduct his right arm, and contracture of the scapulohumeral muscles when such a maneuver was carried out passively. Since I have seen no joint deformities of rheumatic fever origin, the etiology of this periarthritis was taken to be of another nature.

There were instances of hysteria. One was a sailor who had developed a stubborn limp, for which no physical cause could be demonstrated. He had remained immune to all past attempts at management. In an understanding manner and by means of encouraging suggestion he was drilled daily in the mechanics of normal walking. Daily improvement was capitalized upon, and gradually he regained his normal gait. In order to maintain his recovery, duty as a hospital messenger was assigned to him, and he developed a rather wholesome pride in the fact that he had "licked" his disability. The treatment of all cases of suspected psychogenic origin became the common concern of both the psychiatrist and the orthopedic surgeon.

As has been noted, poor posture or static malalignment was a frequent finding. One of the first factors to be mindful of, in evaluating a mild persistent joint pain in the lower extremities, would be the matter of faulty body mechanics. These were patients who had undergone a general constitutional disease with multiple subtle pathologic changes: involvements of blood vessels, fascia, joint structure and skeletal as well as myocardial muscle. Added to this was the prolonged period of bed rest and strictly enforced inactivity. The result would inevitably include muscle atrophy and laxity of ligaments later to be most prominently evident in the lower extremities upon the resumption of weight bearing.

Since these patients had sustained a chronic illness, had been hospitalized for months on end, and discussed "sed" rates as casually as they would box scores, a certain amount of indirection was employed at the time of the physical examination. Following the rather earnest business of getting a detailed history and inventory of symptoms, incidental small talk preceded the orthopedic examination by way of reassuring the patient and putting him at his ease. The use and range of motion of his upper extremities were noted while stripping off his skivy shirt, as well as those of his lower extremities when shifting from one foot to the other to remove his shorts. Unless necessity so dictated, chairs were not made available. When bending to the floor to remove his shoes the contour and flexibility of his spine were observed. A general impression of his musculoskeletal development and body mechanics was obtained in a glance. His gait was analyzed by walking him back and forth across the extent of a room or corridor. His various joints were studied first superficially and then followed through the range of all motions both actively and passively. If the arthralgia had been referred to a weight-bearing joint, a detailed examination of the related group of joints was then made. When the joint or joints in question presented no significant physical findings, a survey was made from postural or static standpoints. To approach a truer evaluation, an effort was made to avoid making him posture conscious. In the presence of postural defects and in the absence of significant roentgenographic findings of the particular joint or joints involved, therapy for the arthralgia was outlined on the basis of postural correction.

Treatment of this group was perhaps the most



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consistently successful. After months of bed rest, patients complained of painful feet, ankles and leg muscles. Physical examination generally revealed, in various stages, depressed arches, pronated ankles, genu varum or valgum. There might be pain in the ball of the foot, in the instep, in the ankle, in the calf group, along the medial side of the knee or in the hip joint. Those patients as indicated were given shoe corrections and felt arch supports. They were given daily supervised exercises to improve muscle tone in the later convalescent stage when full activity was being allowed.

By means of such a sifting or screening process, one approached the diagnosis of postrheumatic arthralgia. Finally, in those instances in which the involved joint appeared otherwise completely negative to physical examinations, free too from any obvious postural defects, and laboratory findings were consistently normal, physiotherapy such as paraffin baths, dry heat, muscle exercises and swimming were prescribed. The patient was encouraged to increase gradually the activity of the joints on the basis that such activity would assist in resolving this residual symptom.

CONCLUSION

In evaluating the symptom of postrheumatic arthralgia, a thorough orthopedic examination of the convalescent patient is indicated. Such bone or joint lesions may then be ruled out which have existed prior to the onset of the acute illness and which, because of the physical debility and mechanical decompensation of the patient, had become productive of symptoms. For the same reasons, all postural defects from the feet upwards should be adequately treated before one can conclude that the arthralgia complained of is directly derived from the disease processes of rheumatic fever.

3720 Washington Avenue

DEER HUNTERS WARNED TO TAKE IT EASY

Now that the hunting season is on, Clay Schoenfeld warns in the current issue of *Hygeia*, health magazine of the American Medical Association, take it easy when you go deer hunting. You're just about as likely to die of a heart attack as of a stray bullet.

Almost 40 per cent of the deer-hunting deaths in the United States are due to heart attacks, according to the writer, a Madison, Wisconsin, resident who speaks from personal experience in the north woods as well as from data compiled by various state conservation departments. Out of 18 hunter deaths in the State of Michigan during the 1946 deer season, he says, "10 were due to gunshot and eight to heart disease. In Wisconsin the heart cases actually outnumbered the bullet toll eight to five."

The trouble is that "the average man in the woods operates unconsciously at a pace and under a strain which he wouldn't think of putting up with back home," Mr. Schoenfeld observes. "The fellow who can't walk a block to catch the bus suddenly goes tramping through underbrush on a 10-mile deer drive. The man who never carries out his furnace ashes decides to drag a 200 pound buck a half-mile back to the road. Or the chap who sits calmly for 51 weeks at a desk stands by the hour with pounding pulse at a deer crossing. . . . Most of the 1946 heart attack victims were hunters in the middle age group."

A LAWYER'S COMMENTS ON MEDICAL TESTIMONY IN MEDICOLEGAL CASES

JOHN G. MADDEN, M.A., B.C.L., LL.B.
KANSAS CITY, MO.

I have discovered, rather belatedly, that I was supposed to discuss today the pitfalls for a physician in medicolegal cases. I have presumed to change that title for these remarks. To be entirely frank, if I knew of any pitfalls for medical witnesses, concealed traps with spiked stakes of irresistible logic upon which to impale the unwary member of that profession, I should never, never disclose them, but guard them as the precious trade secrets they would be, and, for that matter, if disclosure were ever compelled, this would be the last group to which such disclosure would be made. I have never believed in arming the enemy. You know as well as I do, moreover, that it is against the ethics of the legal profession to give away anything, particularly advice, good or bad, and, in any event, to paraphrase an ancient morsel of wisdom, I have not as yet reached that milestone in life when I must begin giving good advice because too old to lead a bad example.

This is the first time in a quarter of a century that I have had the glorious opportunity of saying precisely what I pleased about the medical profession. To insure that freedom of expression—undoubtedly one of the Four Freedoms—I have resolutely declined to furnish your secretary with a copy of these remarks, and thus have escaped the odious hand of the censor. Parenthetically, I have never noticed that medical views of my profession have ever suffered from his restraining influence. According to my medical friends, the legal profession is an unholy amalgamation of dissolute scoundrels (brewing a veritable devil's broth in a satanic caldron) whose insatiable but plainly damnable appetite for the forbidden fruit induces them to seduce a galaxy of medical angels, prancing, cloud-covered, in dangerous proximity to a celestial harp, into the nether regions to their everlasting calamity, there to be induced to genuflect before sacerdotal altars consecrated to the black magic of the legalistic dollar. I am reasonably familiar with both legal and medical offices, and have heard very little celestial music emanating from either. I suggest a legal compromise: that we are not quite so depraved as you believe, and that you are not quite so pure as you pretend. I am no reformer, and hence proceed upon the assumption that human frailty exists in both professions. For that matter I am in favor of human frailty; without it the legal profession could not long subsist.

I shall suggest today no criticism of the medical profession. For some reason that only the Infinite knows it seems easier to criticize than to praise, a tendency doubtless stimulated by the sense of exaltation thereby inspired in the heart of the critic. I am growing weary of the professional Jeremiahs

Presented at the 89th Annual Session of the Missouri State Medical Association, March 30-April 2, 1947, Kansas City.

in every profession who dolorously insist upon bewailing the badge of lost innocence. To plagiarize a famed obituary, I am not here to praise you—and certainly not to bury you (lawyers concede that physicians are preeminent in that field)—but sadly to confess that I only wish that I could claim for my profession the incredible progress of the medical profession during the last generation. That progress is equally evident in the character of medical testimony which today enjoys greater public and judicial confidence than it ever has before through the centuries since the Hippocratic oath was initially formulated. Its history, it must be confessed, has not always been glorious. During the Medieval Ages medical testimony was a curious blend of religion, superstition and magic, weakly diluted by a minimum of pragmatic science. The medieval physician and the voodoo witch doctor might find much in common. An examination of the records in medieval poisoning trials will more than confirm that observation. As a result a prejudice was created against medical testimony which persisted even into our own time. You may be amazed to know that in Missouri, prior to 1930, the expert opinion evidence of a physician did not rise to the level of the testimony of the most debased illiterate. Until that date, with full judicial approval, and today in many jurisdictions, juries were instructed that medical opinion evidence was not binding upon them, that they could disregard it as entirely advisory in character, while the testimony of the hypothetical debased illiterate, subject to the usual rules pertaining to credibility, *was* so binding. I therefore felicitate you today upon arriving at your full maturity as witnesses with your scientific opinions rising to the full level of the testimony of the debased illiterate mentioned. This last comment is, of course, plain hyperbole since the credibility of witnesses is determined primarily by their character and capabilities.

I shall not today intrepidly venture into the trackless wilderness of the vast field of expert testimony. Volumes have been devoted to that subject—written too often, it seems to me, by medicolegal wonders, described by my late father, to whom after half a century of practice they were anathema, as professional hermaphrodites who are purportedly members of both professions but who adorn neither. I hesitate to make suggestions today even touching the field of medical testimony since I question my own qualifications. I believe in the distinct separation of the professions of law and medicine. I should certainly not seek medical advice on my trial tactics, and apprehend that you would be equally uninterested in having advice from me on your professional opinions and conduct. I suggest as a basic rule to be observed by both professions: the lawyer should not seek to advise the physician on medicine, and the physician should not seek to advise the lawyer on trial practice. When either invades the field of the other, difficulties begin to multiply. I have rarely observed a competent physician in trouble on cross-examination without noting that the trouble stemmed from disregard of this simple, self-evident doctrine. No medical witness will normally encounter stormy seas on his journey to the courtroom if he restricts himself to medicine, and does not attempt sweeping opinions involving non-medical factors. I grant you that many lawyers will seek to induce medical witnesses to intrude on a foreign field, but, in my opinion at least, they do so at their peril, and the venture, even if not calamitous, will not enhance them in the eyes of the jury who, after all, are humanly jealous of their prerogatives of fact finding. I am frankly skeptical, for example, of the modern tendency to attempt to reduce every physical disability to the terms of a mathematical formula. Non-medical factors are inevitably brought into play. Loss of a given type of use of a member may, I apprehend, often be expressed in percentages. But when the medical witness seeks to go further, and to translate that loss into a fixed percentage of total disability for the patient, he leaves medicine behind him and enters the field of the jury. An injury, trifling for the one, may be disabling for the other, with the consequential differentiation predicated on non-medical facts. Let me give an example: to conform to the stylistic trend of modern literature, I shall call it the "Case of the Honest Butcher." The latter in a moment of inadvertence managed to sever his left thumb at the first joint with a cleaver. He thereupon asserted that he was indisputably ruined for life. Three medical witnesses, after listening to a recital of his manifold duties, solemnly expressed the opinion that the loss disabled the Honest Butcher from performing each and every duty of his vocation. Some embarrassment ensued when the defense promptly produced another Honest Butcher, the highest paid member of his craft, who had discharged all of the duties of the vocation for some forty years with the entire left hand severed at the wrist. This incident occurred in a rural community, and I am advised that local jocularity pursued the witnesses for some years. The standing of medical testimony suffered a distinct disservice in that community. The witnesses, I may add, were neither venal nor incompetent; they were outstanding citizens and leading professional men. They undoubtedly believed honestly the opinion expressed. Their difficulty originated in their indiscreet attempt to go beyond the field of medicine, and to express opinions which, as their predicate, required knowledge of that strange vocational combination of medicine and the butcher's trade. To use the legal phrase, they invaded the province of the jury.

The medical witness, retained to testify in litigation, occupies a status which rather defies definition. He is a partisan in the sense that, having been retained, it is his duty to express his opinions explicitly, forcibly, and effectively; in a certain sense, therefore, his function approaches that of advocacy. In another sense, in formulating his opinions and conclusions, he is not a partisan, and is precluded from permitting his retainer to affect or

influence his judgment. He is, after all, under oath. If an oath should ever be devised of the same character for the legal profession, I shudder at the consequences. The carnage would be terrific. I may add that I firmly believe in the present system of medical testimony even if it leaves the medical witness as a quasi-partisan. I do not believe in suggested reforms, widely touted as panaceas for all of the evils, real or imaginary, of the present system which would turn the courtroom into a glorified laboratory. I do not believe in medical commissions as a substitute for the sworn testimony of individual physicians. I believe in the preservation of the right of cross-examination in a public trial to correct any tendency, if tendency there be, toward improper partisanship. In open court, as contradistinguished from systems of medical commissions, dominant personalities do not control and prejudice, if it exists, is reasonably well revealed. I am one of those quaint believers in the Anglo-Saxon procedure of trial by jury, not as a perfect instrument, but as the most effective instrument yet devised to eliminate prejudice from judicial decisions, to hold authority, governmental or otherwise, in check, and to preserve justice under the law. Thereunder the physician and the lawyer each has his function to discharge.

The ultimate, and inevitable, question then arises, how does the medical witness most effectively, within proper limits, discharge his function? That inquiry can no more be answered intelligently than can the inquiry, why is one of two lawyers, equally endowed with ability, transcendently superior to the other before court and jury? I freely confess that I cannot answer the inqury and, even if competent to do so, should never attempt the presumptuous task of preparing a handbook for medical witnesses. Rather hesitantly, however, I shall venture to describe certain types of medical witnesses whom I fear least in the courtroom, so long as they testify for my opponent.

First is the partisan witness, who smiles beatifically at counsel producing him on the stand, breaking the monotony, from time to time, by glaring balefully at opposing counsel, whose intense interest is apparent from the inception, who will admit no possibility of error or the propriety of any opinion other than his own, from whom every fact arguably inconsistent with his testimony, must be extracted by a species of forensic dentistry, and who departs from the courtroom, garbed in translucent robes of triumph, when his barrage has apparently survived the attack of cross-examination. Jurors expect partisanship from lawyers and not from witnesses, and, with a partisan witness, often most unjustly suspect malign motives.

Second is the facetious witness, whose every effort is to score upon counsel, whose testimony sparkles with authentic (if sometimes slightly decayed) wit, and who, from time to time, glances toward the jury, with a meaningful nod toward opposing counsel, to show what a dullard the fellow is. The jurors will laugh with him but, in the jury room on final deliberation, will recall the laughter but not his medical testimony.

Third is the learned witness, ponderous in his approach to the witness stand, unfamiliar with any terms other than polysyllabics with Latin or Greek roots, or, which is even worse, disposed condescendingly to explain to the jury the significance of his polysyllabics "in language which laymen can understand." Carlyle remarked that all dignity is painful, and most jurymen are in enthusiastic accord with that view.

Fourth is the argumentative witness, incapable of responding to the simplest question, quibbling at every turn, who can be led astray into remote pastures, and who, in the opinion of the average juror, would display greater knowledge with fewer arguments.

Fifth is a rarity, the unprepared witness, who glances at his office notes en route to the courtroom, who is convinced that every pertinent text has remained for a generation indelibly impressed upon his memory, and who, unfortunately, often falls at the first fence when competent counsel has briefed the textual authorities. The examining lawyer would be hopeless upon diagnosis or treatment, but he may be rather glib in quoting the literature on the subject. Such a witness is rarely disclosed because of the accepted rule, among members of the Bar, never to cross-examine an expert witness on his own subject, or a woman on any subject, unless the circumstances inevitably compel it.

I am tempted to this description of an effective medical witness: firm in manner and expression without partisanship, eminently fair, gracious in concessions, unperturbed by impropriety in cross-examination, friendly, confident without arrogance, adequately prepared, serious in demeanor without stolidity, and with a personality convincingly impressing upon the jury that his testimony would have been identical, if retained by opposing counsel, and that the opinions expressed were those which would have been expressed in his own consultation room. Without invidious distinctions, I should unhesitatingly nominate the late Harold Kuhn as personifying the qualities most to be desired in a medical witness in a regime of justice under law.

I have, I fear, omitted thus far the most essential duty of a medical witness, indispensable to success but most difficult to discharge, namely, the forcible education of counsel who proposes to put him upon the witness stand. That is the monumental test of genius.

2400 Fidelity Building.

"The problems created by chronic illness are not only medical problems but economic and social welfare problems as well," says an editorial in the October 18 issue of *The Journal of the American Medical Association* referring to the comprehensive statement prepared jointly by the American Hospital Association, the American Public Health Association, the American Public Welfare Association and the American Medical Association, points out.

CONGENITAL ABSENCE OF VAGINA

TREATMENT AND AFTERCARE

REPORT OF CASE

ROBERT J. CROSSEN, M.D.
ST. LOUIS

Congenital absence of the vagina is a rare condition although not as uncommon as formerly was supposed. Numerous methods have been devised for its correction. More than a hundred years ago a nonoperative treatment for this condition was reported. This was based on the principal that an adequate vagina can be formed by persistent pressure with a firm object in the space between the urethral meatus and the rectum. The pressure method was reemphasized by Frank in 1938 and it is now known as the Frank method. The technic consists in making firm pressure in the area mentioned several times a day, starting with a 5/16 inch solid glass rod until a pocket begins to form. The diameter and length of the rod is increased as the pouch develops until the cavity is large enough for coitus. This method has been most successful in patients who have a small pouch present, but it has also been successfully used in cases with no semblance of a pouch. With this method a period of six months to a year is usually needed for formation of an adequate vagina.

Of the operative methods, the earlier ones of Baldwin, in which a loop of gut was used, and of Schubert, in which a portion of rectum was used, were formidable procedures and they carried a high mortality. Later, plastic surgical methods which lessened the risk, encouraged surgeons to advise operative correction more frequently. Graves used two flaps from the labia minora and two from the thigh. Davis and Cron used just the labia minora, Frank and Geist used a tubular pedicle flap from the thigh, and other authors reported various other plastic technics.

In 1938 Wharton reported a simple technic which can be done in a short time and requires no extensive plastic operative experience. Because of its simplicity and high percentage of success, it has been accepted widely, and is now used almost exclusively when operation is required.

The technic is as follows: A transverse or semilunar incision is made across the vestibule in the area where the vagina should be. A plane of cleavage usually is found and followed upward without difficulty by blunt dissection. A space of adequate size is prepared and bleeding points are caught and tied. Prior to the operation, balsa wood forms of various sizes are prepared so as to be sure to have one of the proper size available. A groove is made in the portion of the form which fits under the urethra, in order to prevent pressure necrosis of this structure. The form is covered with a condom and sterilized by soaking in bichloride of mercury and then alcohol (fig. 2). The form is inserted into the prepared space and kept in place until the epithelium has had time to grow in from the margins of the opening and cover the walls of the newly formed vagina. The form is kept in place for three weeks unless it is necessary to remove it sooner. It is then worn most of the time for another month. After this period, it is worn only at night, if needed. Recently, Wharton has improved this technic by using Thiersch grafts sewed over the form and this has reduced the time needed for epithelization and also has reduced the amount of scar tissue formed.

In an article last year, Wharton discussed the difficulties and accidents encountered in his procedure. Among these were difficulties in dissecting an adequate space, and the danger of injury to the bladder and rectum. He stressed the importance of getting adequate space and maintaining it when the patient has the initial operative work. The difficulties and dangers are increased when it is necessary to reoperate because of a primary failure. Second was the danger of hemorrhage and he pointed out that the areas where bleeding is most common are on the lateral walls at the level of the broad ligaments. Large vessels in this area should be transfixed and ligated. In the case reported here the general ooze was controlled with fibrogel. The excess was removed after the area was dry and before the graft covered form was introduced. Third, Wharton states that infection was rare but it did occur in one case in which the vaginal form came out into the bedpan. This same thing happened in my case but, fortunately, no infection occurred. The way in which this difficulty of keeping the form in place was overcome is discussed later. Wharton reports one case in which a plug which was completely within the vagina sloughed through into the rectum. Injuries to the bladder or rectum should be repaired as soon as discovered.

CASE REPORT

Miss R. D. was first seen on September 24, 1945. She had been engaged and was planning to get married but the fact that she had never menstruated had caused her



Fig. 1. Preoperative condition. Note normal clitoris and labia. Urethral meatus shows clearly and the space below it is area where incision is made.

Presented before the St. Louis Surgical Society, November 20, 1946.

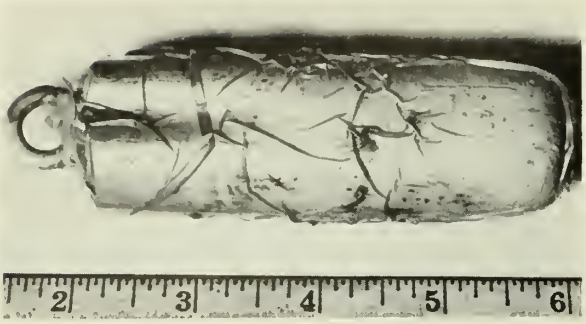


Fig. 2. Shows balsa wood plug with groove for urethra. Condom covering it is wrinkled. Screw eye at outer end through which rubber tubing passes.

to consult another physician for a premarital examination. He had examined her under anesthesia. During the examination, he had mistaken the urethra for the vagina but fortunately realized his error when he found no cervix on speculum examination. The patient was incontinent for a while after this but rapidly regained her urinary control and this was normal on her first visit.

She had had no lower abdominal pain or swelling. On examination, the breasts were found to be well developed. The general body shape and the hair distribution were of the normal female type.

The external genitals appeared normal but there was no vaginal opening present (fig. 1). On recto-abdominal examination no pelvic structures could be felt and there was no evidence of a collection of fluid. A diagnosis of absence of vagina was made with a question as to whether or not the uterus or ovaries were present.

The situation was explained to the patient and she requested that I explain it to her fiance. In spite of the fact that this was done with tact, and the encouraging results with operation were emphasized, he broke the engagement giving as his reason the fact that I could not give him much hope of offspring.

The patient was then advised to try the Frank method until such time as she might be ready for marriage.

In August 1946, she informed me that she was again engaged, that her fiance knew what the situation was and that they wished to be married in November.

On September 14, 1946, the following operation was performed.

There was a slight dimple where the patient had been trying to use the pressure method of creating a vagina but it was not deep at all and was quite irritated from the efforts. An incision was made transversely in the area where the vagina should be, between the rectum and urethra. An intern with his finger in the rectum acted as a guide for my fingers as I introduced them into the fascial spaces and dissected the area necessary to place the vaginal mold. Also, I had a sound in the urethra to guide me from that side. The area was opened slowly by blunt dissection until I could get three and almost four fingers in the outside opening and the length of the canal allowed the introduction of the full length of the index and middle fingers. The Upjohn's firbinfoam was then placed in the cavity and allowed to remain there while the skin graft was prepared by Dr. J. Barrett Brown. The skin graft was taken from the inner aspect of the thigh on the right side and was a regular Thiersch graft. The graft was sewed over the balsa wood mold all in one piece with the end of the mold at its midportion and the skin side toward the mold. The mold was introduced into the open space after removal of all the fibrin gell and clots. The mold was held in place by having the screw eye, attached to the mold, extend through a per pad. This was held in place by a T binder.

The postoperative orders were as follow: The patient was to be kept absolutely quiet for about six days and was to have rectal routine and liquid diet. After about six days the patient was started on mineral oil and allowed a bowel movement. After she had a bowel movement, a belt and fine rubber tubes were fixed to hold the form in place so that the patient could void and have bowel movements without having to remove the pad.

The patient was kept absolutely flat on her back with no leg movement for three days and then allowed to lie on her side for three days with leg movement. Diet was low residue and liquid with oil retention enema on the seventh day and removal of retention catheter on that day.

On September 20, 1946, the patient had a bowel movement and pushed out the wooden plug into the bed pan. A small area of necrotic skin was excised. The vagina was flushed with saline. Little dead skin was washed out. The plug was resterilized and reinserted after coating it with scarlet red ointment.

A pyelogram was taken on the eleventh day.

On September 26, examination of the vagina was made after removal of the plug. A speculum was inserted all the way. The skin graft had taken over almost the entire area. A new, shorter mold was inserted. The screw eye was then just at the introitus.

On September 28, the skin graft area was healed.

On September 30, the patient was dismissed with routine instructions. Iron and vitamins were given.

As mentioned, on the fourth day the patient had a bowel movement and passed the vaginal form into the bed pan. In order to prevent a recurrence of this accident, a belt, of the type used with a cup pessary, was obtained and the thin rubber tubing was run through the screw eye in the end of the balsa form and then back up to the belt as shown in fig. 3. This worked perfectly even with the patient up and around.

Pyelograms were taken on the eleventh day to rule out abnormalities of the genito-urinary tract which frequently accompany abnormalities of the genital tract.

The condition one month after operation is shown in fig. 4. The patient was married on November 27, 1946. On her last visit to the office on September 13, 1947, she stated that coitus was normal and that she usually had an excellent response. On examination, the vagina admitted two fingers easily and the vaginal speculum could be introduced its full length and opened without causing the patient any pain.

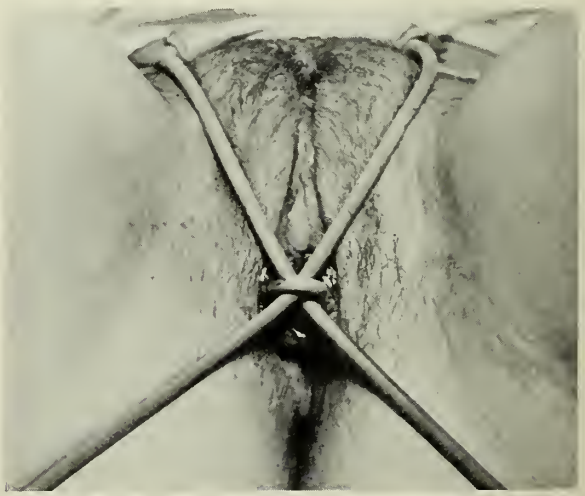


Fig. 3. Showing plug in place in vagina. Rubber tubing passes through screw eye and crosses to the opposite side. Rubber tubing fastens to belt in front and back. This holds the plug in place even with the patient up and around.

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Fig. 4. Vagina one month after operation. Speculum in full length. Glistening epithelium seen at upper end of vagina.

DISCUSSION

A case of congenital absence of vagina corrected by the Wharton technic is reported. Various other technics are discussed. The advisability of delaying the operation until the patient is ready to be married is pointed out. Investigation of the genitourinary system should be done in all cases of this type, preferrably before operation. Difficulties in the operation and in the postoperative care are discussed and special mention is made of an improved method of keeping the vaginal form in place.

607 N. Grand

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BOOK REVIEWS

Atlas of Cardiovascular Diseases. Correlation of Clinical Electrocardiography and Cardiac Roentgenology with Clinical History and Autopsy Findings. By Irving J. Treiger, M.D., Assistant Professor of Medicine, University of Illinois, Chicago; In Charge of Cardiographic Department, Presbyterian Hospital, Chicago; Consulting Cardiologist, Municipal Tuberculosis Sanitarium, Chicago. Illustrated with 69 Plates Containing 244 Illustrations. 11 in Color. St. Louis: The C. V. Mosby Company. 1947. Price $10.00.

The value of correlating the clinical symptoms and signs found on physical examination, with the x-ray examination of the heart and the electrocardiogram has been well appreciated for some time now. Dr. Treiger's "Atlas" presents the autopsy findings as an additional correlation. Together, these various examinations emphasize the abnormal physiology and anatomy that occur in the well known forms of heart disease.

This book is divided into six parts: "Normal Heart," "Rheumatic Heart Disease," "Arteriosclerotic Heart Disease," "Hypertensive Heart Disease," "Syphilitic Heart Disease," and "Congenital Anomalies of the Heart."

The photographs of chest x-rays, anatomic specimens and electrocardiograms are excellent. The colored plates are particularly good.

Roentgenologic descriptions and plates clearly depict the heart in the normal A-P, right oblique and left oblique views, followed by the characteristic changes which occur with each anatomic abnormality of the heart.

Since this is an "Atlas of Cardiovascular Diseases," the very brief discussion of the normal electrocardiogram seems of questionable value.

The purpose of this text is well accomplished, with a brevity and conciseness that add to its value. This book should be of inestimable value as a ready reference and teaching manual for all students interested in Cardiovascular diseases. R. P.

Synopsis of Allergy by Harry L. Alexander, A.B., M.D., Professor of Clinical Medicine, Washington University School of Medicine, St. Louis; Editor of The Journal of Allergy. Second Edition. C. V. Mosby Co. St. Louis. 1947. Price $3.50.

The format of this edition is similar to its predecessor. The sequence of chapters is also the same, but the text has been brought up to date when dealing with theories and therapies by the inclusion of a discussion of the influence of the antihistaminic drugs upon the theory of histamin release as the cause of allergic symptoms, and their use as therapeutic agents; and by the addition of a chapter on vascular allergy, wherein is discussed the presently expanding concept of clinical allergy, based on the current experimental and clinical histopathologic observations. Throughout the book, it is emphasized that the clinical diagnosis of allergic manifestations must rest upon the presently accepted immuno-pathologic mechanism.

The book can be recommended as an excellent source for quick reference to concise statements of present day opinions, and the author's, if he is in disagreement, upon the various allergic manifestations. Unfortunately, its general excellence is marred by the inclusion of pointless illustrations and discarded therapies, and by typographical errors (page 93, "Apomorphine 0.005 gr. (gr. 1/30)" appears in a prescription so that the metrology of this prescription is a mixture of the metric and apothecary systems; and on the same page, "Comp. Glycerine Mixt." appears as the vehicle in a prescription, a formula which cannot be found in the United States Dispensatory; page 143, "Atropine—given in doses of 0.001 Gm. (gr. 1/150) a few times a day," an incorrect equivalent, with the former dosage too large for an initial dose), which impair its authoritativeness as a reference book. C. H. E.

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DECEMBER, 1947

EDITORIALS

ANNUAL SESSION

Edward L. Bortz, M.D., Philadelphia, President of the American Medical Association, will be the speaker at the Banquet in Honor of Past Presidents at the Ninetieth Annual Session of the Missouri State Medical Association which will be held in St. Louis, March 14 to 17, 1948, at the Jefferson Hotel.

Among out of state speakers who will appear on the scientific program are Bayard T. Horton, M.D., Rochester, Minnesota; Tom E. Smith, M.D., Dallas, Texas; Henry T. Ricketts, M.D., Chicago; Charles G. Johnston, M.D., Detroit, and William F. Mengert, M.D., Dallas.

The session will open with the House of Delegates on Sunday afternoon, March 14. The scientific program will begin on Monday morning with a symposium on "Obstetrics." On Monday afternoon and on Tuesday morning, programs on varied subjects will be presented. A panel discussion on "Pediatrics" with a general practitioner as moderator will be the program on Tuesday afternoon. On Wednesday morning a symposium on "The Acute Abdomen" covering diagnosis, medical, surgical and obstetric and gynecologic aspects, and supportive procedures will be given. A meeting of the House of Delegates followed by a meeting of the Council on Wednesday afternoon will close the session.

Scientific exhibits will be included in the session. As space is limited, application for these exhibits should be made during December as selection of the exhibits to be used will be made soon after January 1.

MEDICAL CARE

It often is difficult to give an answer to the many, and oftentimes indefinite, statements concerning the lack of medical care in this country. This is something that cannot be answered entirely by statistics but some figures do make one wonder if there is not more care available than is taken into account by proponents of compulsory measures.

Statistics concerning the work of the Ellis Fischel State Cancer Hospital at Columbia from the time of its opening in April of 1940 to September 30, 1947, are among such figures.

The total number of out-patient visits to the hospital has been 37,849; the total number of patient hospital days, 219,687; total number of operative procedures, 7,803; radiotherapy treatments, 108,534; diagnostic roentgen ray examinations, 22,131, and the total number of laboratory procedures 285,647.

MEDICAL SERVICE

Medical practice and medical service never have remained stationary. It is not the desire of the medical profession that it remain in status quo. However, the coming year undoubtedly will bring renewed efforts to change the methods by which medical service in this country is conducted, distributed and paid for. And the methods which will be promoted are not those based on proved need or along scientific, social and economic lines. They will be those methods produced or influenced by political thought.

In Missouri, two plans for the purpose of providing better medical care are in existence and are increasing in service to the people. The total number of subscribers in the two plans, Missouri Medical Service and Surgical Care, Inc., is 254,000. Benefits to subscribers during the last year have been $1,524,000.

Plans throughout the country have an enrollment of more than six million. According to the Council on Medical Service of the American Medical Association, percentage gains in plans during the first six months of 1947 ranged from 4.9 per cent to 763.2 per cent with an average of 31 per cent.

In only two states in the United States is there no such plan either in operation or in process of development. There has been no failures of plans for medical care sponsored by the medical profession since 1939. It is the type of change in medical service which should be developed and which is being developed in Missouri and in most of the states.

NEED FOR PNEUMOTHORAX AND PNEUMOPERITONEUM TREATMENT

In the constant fight against tuberculosis one of the important factors is getting patients into sanatoria as soon as possible after the need for sanatorium care is established. In Missouri this is not always possible because of lack of sufficient facilities for tuberculosis patients.

The Missouri State Sanatorium at Mount Vernon frequently encounters the problem of having patients ready for discharge who need to continue pneumothorax or pneumoperitoneum treatments for an indefinite time after leaving the hospital and resuming activity although the tuberculosis is considered arrested.

Lack of knowledge of physicians in private practice and hospitals in the state who are equipped to do fluoroscopic examinations of the chest and to give pneumothorax and pneumoperitoneum treatments has made it obligatory that some patients be held in the sanatorium when they might receive this care after discharge. Charles A. Brasher, M.D., Superintendent, Missouri State Sanatorium, Mount Vernon, would welcome information from all physicians interested in this work.

HEALTH IN THE UNITED STATES, FIRST HALF OF 1947

The general health of the people of the United States, maintained during the war years at a higher than prewar level, continued favorable during the first six months of 1947, Federal Security Administrator Oscar R. Ewing said recently.

The reported incidence of most of the important communicable diseases, the crude death rate, the maternal and infant mortality and the specific death rates for certain diseases indicate as good health conditions in the United States during the first half of 1947 as in 1946, if not slightly better, according to Public Health Service figures.

Lower incidence than for the same period last year was reported in the first half of 1947 for diphtheria, the dysenteries, malaria, measles, meningococcus meningitis, mumps, poliomyelitis, scarlet fever, smallpox, typhoid fever and typhus fever. Increases were reported for chickenpox, influenza, septic sore throat, tularemia, undulant fever and whooping cough.

On the basis of a 10 per cent sample of death certificates, the national office of Vital Statistics reports lower death rates for tuberculosis, pneumonia and influenza (combined), the common communicable diseases of childhood and syphilis. Although more cases of influenza were reported in the first six months of 1947 than for the same period in 1946, the estimated death rate for influenza and pneumonia (combined) for this period in 1947 was 55.8 per 100,000 population, or 5 per cent less than the rate of 58.9 in 1946. The influenza epidemic appeared later than usual in 1947, beginning the latter part of February or early in March.

The more favorable mortality from the "prevalent diseases of childhood" was due largely to lower rates for diphtheria, meningococcus meningitis and measles during the first half of 1947. Measles was in the epidemic phase during the early part of 1946.

The estimated death rate from nephritis was 60.1 per 100,000 population for the first six months of 1947 as compared with 65.0 for the corresponding period of 1946. Except for nephritis, there appears to have been no significant change in the death rate for the diseases of the cardiovascular-renal system. (Deaths from diseases of the heart, the circulatory system and kidneys are included in this group.)

The estimated maternal mortality rate for deaths from puerperal causes was 1.5 per 1,000 live births for the first six months of 1947, as compared with 1.7 for the corresponding period in 1946; and the adjusted infant mortality rate was estimated to be 34.6 per 1,000 live births for the first six months of 1947, as compared with 38.4 in 1946.

The gratifying picture presented in bold strokes of overall mortality should not obscure the many specific health problems which have now become the most promising fields for further reducing the amount of ill-health and increasing the expectancy of life.

NEWS NOTES

W. E. Keith, M.D., Kansas City, was installed as president of the American Association of Eye, Ear, Nose and Throat secretaries at their meeting in Chicago in October.

Howard B. Goodrich, M.D., Hannibal, was a guest speaker at the October meeting of Delta Sigma in Hannibal and spoke on "The Progress of Health" in which he compared 1900 to the present time.

A. Lloyd Stockwell, M.D., Kansas City, presented a paper on "Absorbable Hemostatic Agents in Urological Surgery" at the South Central Section of the American Urological Association which met in Fort Worth, Texas, October 13 to 15.

M. Hayward Post, M.D., St. Louis, will be one of the speakers at the third Pan American Congress of Ophthalmology which will be held in Havana, Cuba, January 4 to 10, 1948. Albert N. Lemoine, M.D., Kansas City, will give one of the thirty instructional courses planned for the session. Approximately 1,000 ophthalmologists are expected to attend the session at the University of Havana School of Medicine.

Missouri State Medical Board Examinations will be given on January 19, 20 and 21, 1948, in Kansas City, by the State Board of Medical Examiners. For information write to Mr. John A. Hailey, Executive Secretary, State Board of Medical Examiners, P. O. Box 4, Jefferson City.

A conference on "What We Can Do About Rural Health" took place in St. Louis on November 7. The program was arranged by the National Cooperative Milk Producers Federation, Washington, D. C. F. S. Crockett, M.D., Lafayette, Indiana, chairman of the American Medical Association Committee on Rural Medical Service; C. D. Head, Jr., M.D., Kansas City, of the United State Public Health Service; F. A. Humphrey, M.C., Collins, Colorado, and Allen T. Stewart, M.D., regional directors of the American Medical Association Com-

mittee on Rural Medical Service, took part in the discussion. The program included the following subjects: (1) Hospitals and Health Centers, (2) Hospitalization and Medical Care Plans, and (3) Health Councils.

The Council on Industrial Health will hold its Eighth Annual Congress on Industrial Health in the Cleveland Auditorium, Cleveland, on January 5 and 6, 1948. These dates immediately precede the Interim Session of the American Medical Association, which will be held in the Auditorium on January 7 and 8. General practitioners supply a large part of the medical services which workers receive through industry, and they are cordially invited to attend these industrial health sessions. The program of the Congress is being constructed with general practitioners in mind and will include discussions of first aid and emergency services in industry, physical examinations, administrative practices, applied physiology, aviation medicine, radiation medicine and practical expositions of occupational disease management, traumatic surgery and rehabilitation. Since full use of medical services in industry depends on support from management and the worker, the essential relationships will be discussed. Industry needs medicine as a practical ally and to promote human relations. The Industrial Health Congresses are intended to further these objectives.

DEATHS

Donnell, Jesse Franklin, M.D., Crystal City, a graduate of the Beaumont Hospital Medical College, St. Louis, 1891; member and former president of the Jefferson County Medical Society; aged 79; died August 14.

Stevens, Lawrence H., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1929; member of the St. Louis Medical Society; aged 42, died September 23.

Bardenheier, Frederick G. A., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1903; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 66; died September 26.

Patrick, Philip Lawrence, M.D., Marceline, a graduate of Washington University School of Medicine, 1902; member and former president of the Linn County Medical Society; aged 72; died September 26.

MISCELLANY

CANCER CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for October and November, to which all members are invited, beginning at 1:00 p. m. each clinic, follows:

December 3: Miscellaneous.
December 5: Gynecologic and Genitourinary.
December 10: Skin.
December 12: Breast.
December 17: Gastrointestinal.
December 19: Cervix.
December 24: Skin.
December 26: Head and Neck.
December 31: Bone and Lymphomas.
January 2: Gynecologic and Genitourinary.
January 7: Miscellaneous.
January 9: Breast.
January 14: Skin.
January 16: Cervix.
January 21: Gastrointestinal.
January 23: Head and Neck.
January 28: Skin.
January 30: Miscellaneous.

THE NURSING CRISIS

Speaking for its 155,000 registered professional nurse members, the American Nurses' Association issued a statement to the public recently on the critical situation facing the American people. The statement stated that "the public must be roused to a clearer understanding of the present crisis in nursing if the situation is to be met and the health of the American people is to remain safeguarded."

The statement analyzed the underlying problems in the present nursing crisis and outlined a three point program by the association designed to aid in enlisting the cooperation of other groups to help solve the problem.

Pointing out that the demand for nurses has skyrocketed in the last few years, both during and since World War II, the association indicated that a number of factors are not only deterring would be nurses from joining the profession but are discouraging many nurses who are already registered from continuing their professional activity. These factors were defined as: (1) inadequate economic security and unsatisfactory conditions of employment, (2) lack of adequate legal control of nursing by the states, and (3) faulty distribution of nursing service.

ECONOMIC SECURITY

On economic security, the American Nurses' Association described the economic status of nurses since 1873 when nursing schools were first established in the United States. "Long hours, split shifts, lack of retirement provisions and minimum salary increases have characterized the nurses' working conditions while, at the same time, the responsibilities of nurses have increased greatly, thus requiring higher standards of education and performance. The average requirement for professional nurse preparation is a high school diploma plus three years of nursing school education. According to U. S. Department of Labor statistics for October 1946, the average cash salaries for nurses in all fields, with the majority providing their own living quarters, amount to $170 to $175 per month. One out of every four nurses receives less than $145 per month. The vast majority of nurses work a 48-hour week, while a great many, owing to in-

creased patient loads, still work as many as 54 or more hours a week."

The American Nurses' Association has encouraged state nurses' associations to undertake to act as the duly authorized representatives of professional nurses in all matters affecting their economic status including collective bargaining. The ANA appeals to the public to accept its responsibility of helping the profession to bring about reforms in providing economic security which are as vital to the public welfare as they are to the individual nurse.

INADEQUATE LEGAL CONTROL

On legal control, the statement said that at the present time there is wide variation in the standards for accredited schools of nursing and for registration of professional nurses in the several states. The first registration law was enacted in 1903 and since that time forty-eight states, the District of Columbia, Alaska, Hawaii and Puerto Rico have passed laws providing standards for the registration of professional nurses. Only twenty-six states, and Hawaii and Puerto Rico, now have laws providing licensure for practical nurses. Only two states have laws requiring licensure of all who nurse for hire. Without such laws in all states the public is at the mercy of many unqualified and unlicensed persons.

According to the statement, in spite of the large number of nurses graduated from the 1,250 state accredited schools of nursing, many factors have combined to create unprecedented demands for additional nursing service. Some of these are: the increased public interest in health care, the development of Blue Cross hospital plans, increased hospital construction, federal social legislation and improved health education. The exploitation of student nurses by many hospitals has been a deterring factor in the effort made by the profession to provide an adequate supply of qualified nurses. Too many hospitals in order to obtain an inexpensive supply of nursing service have developed schools of nursing, but have sacrificed the educational needs of students to their own needs for nursing service.

FAULTY DISTRIBUTION

On distribution of nurses, it was stated that the association stands for nursing service equally available to all who need nursing care, regardless of economic status, in both rural and urban areas.

Nurses, like all other professional groups, tend to concentrate in metropolitan areas where research and educational facilities are available, where a more satisfying social life is possible and where economic conditions are more favorable.

The American Nurses' Association, with the cooperation of the state nurses' associations, has organized a nonprofit, nation-wide counseling and placement service available without charge to nurses and employers alike. This activity is designed to promote a more equitable distribution of nursing service.

SOCIETY PROCEEDINGS

FIRST COUNCILOR DISTRICT

H. E. PETERSEN, ST. JOSEPH, COUNCILOR

Harrison County Medical Society

Twenty-four physicians from nine counties attended a dinner meeting at the Leeper Hotel, Chillicothe, on October 29, sponsored by the Harrison County Medical Society. County Medical Societies included in the meeting were the Caldwell-Livingston, Carroll, Grundy-Daviess, Harrison, Linn, Mercer and Ray.

Maxwell G. Berry, M.D., Kansas City, spoke on "The Significance of Chest Pain." Interest in this subject was evident from the extensive discussion following the formal presentation.

Another meeting of the group is scheduled for early in December.

W. A. BROYLES, M.D., Secretary,
Harrison County Medical Society.

FOURTH COUNCILOR DISTRICT

OTTO W. KOCH, CLAYTON, COUNCILOR

St. Louis County Medical Society

The St. Louis County Medical Society held its regular meeting on October 22 at 8:30 p. m. at the Health Center, St. Louis County Hospital, Clayton, with E. B. Waters, M.D., vice president, presiding.

R. D. Furlong, M.D., chairman of the medical economics committee, gave an excellent report on the contract practice of medicine by hospitals and other organizations. The written report was received and filed by the secretary.

Upon motion of Roy Walther, Sr., M.D., it was decided to reimburse the Woman's Auxiliary $150.00 which had been spent during the year in behalf of the Society.

Bruce D. Kenamore, M.D., St. Louis, spoke on "Recent Advances in the Management of Peptic Ulcer." His paper was discussed by Drs. Paul Hagemann, S. Levey and John D. Hayward.

MARTYN SCHATTYN, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR

Henry County Medical Society

A joint dinner meeting of thirty-six physicians representing twelve counties was held at the Cozart Hotel, Clinton, on November 3, sponsored by the Henry County Medical Society. The societies represented were Barton-Dade, Bates, Benton, Cass, Henry, Johnson, Lafayette, Pettis, Saline and Vernon-Cedar.

Fred B. Kyger M.D., Kansas City, gave an interesting and practical talk on "Office Gynecology."

Following the scientific part of the program considerable time was spent in discussing the Federal Hill-Burton Hospital Construction Act as it relates to Missouri.

The Johnson County Medical Society will sponsor the next joint meeting to be held in January.

RAY S. HOLLINGSWORTH, M.D., Secretary,
Henry County Medical Society.

Pettis County Medical Society

Twenty-three physicians attended a dinner meeting of the Pettis County Medical Society at Sedalia on October 20.

A comprehensive program on "Low Back Pain" was presented by Ira H. Lockwood, M.D., and Associates, Kansas City.

Following the scientific program a number of those present took part in a general discussion of present conditions affecting rural medical practice in Missouri.

E. L. RHODES, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

One hundred twenty-five physicians attended the Eighth Councilor District meeting at the State Sanatorium, Mount Vernon, the afternoon and evening of October 23.

In the afternoon, Garrett Pipkin, M.D., Kansas City, spoke on "The Use of Physical Therapy in General Practice"; B. E. DeTar, M.D., Joplin, spoke on "Gallbladder Infection"; M. Pinson Neal, M.D., Columbia, discussed "Diagnoses Commonly Missed in General Practice."

The evening session began with a bountiful dinner served at the Sanatorium and continued with a round table discussion on "Your State Association in Action" with Morris B. Simpson, M.D., Kansas City, President of the Association, serving as moderator. Participants on the evening program included R. M. James, M.D., and John Williams, Jr., M.D., State Division of Health; W. S. Sewell, M.D., Springfield, President, Community Health League; Mr. T. R. O'Brien and Mr. Ray McIntyre of the State Medical Association.

At the close of the formal district program, Carl Pfuetze, M.D., a recognized authority on streptomycin in the treatment of tuberculosis, gave an interesting and informative presentation of this subject.

Barton-Dade County Medical Society

The Barton-Dade County Medical Society met at Lamar, the evening of October 15. Those present at the meeting included Drs. Claude Duckett, M. H. Noltemeyer, V. T. Bickel, Lamar; C. S. Newman, C. B. Newman, John Erickson, Pittsburg, Kansas; Rudolf Knapp, Golden City; Frank Birsner, Lockwood; F. T. H'Doubler and Elmer E. Glenn, Springfield.

Dr. Glenn spoke on "Rheumatic Heart Disease." An interesting discussion followed his formal presentation.

Rudolf Knapp, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met at the Antlers Cafe in Mountain Grove for a dinner meeting on October 17, with the following members and visitors present: J. R. Mott, M.D., Hartville; J. A. Fuson, M.D., Mansfield; L. T. Van Noy, M.D., Norwood; R. A. Ryan, M.D., R. W. Denney, M.D., H. G. Frame, M.D., and A. C. Ames, M.D., Mountain Grove; Garrett Hogg, Jr., M.D., Cabool; Rollin H. Smith, M.D., West Plains; W. T. Eudy, Eminence; L. F. Heimburger, M.D., and Mr. Fred De Armond, Springfield.

Following dinner the meeting adjourned to Dr. Ryan's office.

Dr. Heimburger read an instructive paper and showed a number of slides on "Contact Dermatitis."

Mr. DeArmond spoke concerning the language used by physicians and other scientific writers and argued for a more general use of language that would be better understood by the layman.

A vote of thanks was given the speakers.

The Society will meet at Cabool on November 21.

A. C. Ames, M.D., Secretary.

BOOKS RECEIVED

Ulcer, The Primary Cause of Gastric and Duodenal Ulcer. Diagnosis, Medical and Surgical Treatment, Prevention. By Donald Cook, B.A., M.D., Chicago. With 27 Illustrations. Chicago: Medical Center Foundation and Fund.

WOMAN'S AUXILIARY

Missouri State Medical Association

Woman's Auxiliary to the St. Louis County Medical Society

The Woman's Auxiliary to the St. Louis County Medical Society met on November 12 at the St. Louis County Health Center, Clayton.

Miss Mae Ellen Dvorachek, home economist of the Union Electric Company, gave a demonstration and spoke on "Holiday Foods."

Mrs. Paul Whitener, Mrs. W. H. Bailey and Mrs. C. E. Sterling, Overland, were hostesses for the evening and served refreshments to both the Auxiliary and the St. Louis County Medical Society.

Mrs. C. H. Denney, Press and Publicity.

BOOK REVIEWS

Experiences With Folic Acid, by Tom Spies, M.D., Associate Professor of Medicine, University of Cincinnati School of Medicine, Director of the Nutrition Clinic, Hillman Hospital, Birmingham, Alabama. The Year Book Publishers, Inc., 304 S. Dearborn Street, Chicago. Price $3.75. 1947.

This book of a hundred pages is apparently intended by Dr. Spies to indicate the proper attitude toward, and use of folic acid in the appraisal of its value in macrocytic anemias.

It summarizes the investigation leading to the synthesis, comparison and coalescense of the various antianemic vitamins; namely, folic acid, pteroylglutamic acid and lactobacillus casei factor.

The author gives his criteriae of selection of cases for study, and offers tables of differentiation of the macrocytic anemias of pregnancy, pellagra and dietary deficiency. He considers these all as nutritional anemias which are cytologically identical to that of sprue and pernicious anemia.

This book establishes no definite dosage of folic acid except that it should be enough. It claims equal but slower hemopoetic response for folic acid compared to liver extract; and definitely states it will not prevent or cure the neurologic disturbances, associated with pernicious anemia. Liver extract is still considered preferable in treatment of this condition.

This brief summary of the years of work Dr. Spies has devoted to this subject, is concluded with three illustrative cases, and an extensive bibliography covering the work on folic acid. J. A. J.

Medical Education and the Changing Order, by Raymond B. Allen, M.D., Ph.D., Executive Dean, Colleges of Dentistry, Medicine, and Pharmacy, University of Illinois, Chicago. The Commonwealth Fund. New York. 1946. Price $1.50.

This monograph is an exposition of a philosophy of medical education to which the author has apparently devoted a great amount of thought.

It forecasts trends and developments.

Some improvements in the form of medical education are explicitly suggested and he urges that a broad framework covering all the facts contributing to a full knowledge of the life processes in health and disease be adopted by all schools.

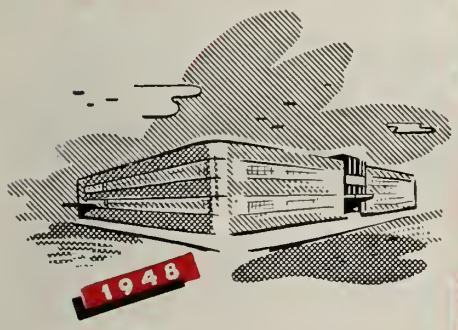
The historic background of medical teaching is outlined briefly.

The relation of medical education to contemporary social progress is emphasized and asks the specific

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question, "Does medical education share in the responsibility for the failure of the medical profession to exhibit social insight and aggressive leadership, molding public opinion toward a comprehensive handling of the problem of adequate medical care for all the people?" Various chapters are devoted to suggestions on preparation for "Study" by the premedical student and of "Formal Study," and problems and opinions in relation to faculty and research.

After reading the monograph I must confess I am still a bit confused as to the proper trend in medical education—though many excellent thoughts and ideas are expressed by the author. R. R. C.

Gynecology, With a Section on Female Urology by Lawrence R. Wharton, Ph.B., M.D., Assistant Professor of Gynecology, The Johns Hopkins Medical School; Assistant Attending Gynecologist, The Johns Hopkins Hospital; Consultant in Gynecology, The Union Memorial Hospital, Hospital for the Women of Maryland, Sinai Hospital and Church Home and Infirmary. Second Edition, with 479 Illustrations. W. B. Saunders Company. Philadelphia and London. 1947. Price $10.00.

This rather excellent text and reference book is now in its second edition. In this edition the author has attempted to bring his entire subject matter up to date, rewriting in particular the sections on embryology and congenital malformations. Recent developments in operative technic have been presented together with new illustrations.

This book is an effort to put into simple and clear form the main facts about gynecology. Author Wharton believes that gynecology is no longer merely a surgical art but that a large part is now medical and preventive and all of it must be based on accurate diagnostic study.

The book deviates from the usual pattern of recent gynecological texts in two particulars: (1) Recent and well accepted texts in gynecology have placed so much emphasis on pathology that they simulate pathology texts. Author Wharton is not guilty of over emphasis in this direction, and has filled his book with workable information that may be transmitted from doctor to patient with mutual benefit. (2) In this book is included some 300 pages on female urology which of course would make author Wharton somewhat of a heretic in some sections. However, in the opinion of this reviewer this is a worthwhile addition and will help train better gynecologists. Hopkins puts emphasis on this combined training for their men and Wharton goes along with the idea in his book. He states that whether the gynecologist practices urology or not he knows that the urinary organs are the sites of the most serious accidents and complications in obstetrics and gynecology practice.

The author's sections on "Intestinal Complications," "Postoperative Care" and "Normal Hygiene," "Endometriosis," "Sterility," "Extra Uterine Pregnancy," and "Abortion" add to the book's value for reference. The illustrations and usual sections on anatomy, embryology, physiology and functional disturbances, the gynecologic examination, childbirth injuries and diseases of the vagina, cervix, uterus and adnexa, are presented in standard fashion and in a style that makes good reading. The section on function of the sympathetic nervous system in gynecology is well presented. All of the standard operations in gynecology are illustrated and described. There is a good section on pruritus.

The authors last section, "Irradiation Gynecology and Female Urology," could stand some added information if it is to become an authoritative part of the book. T. A. C.

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INDEX TO VOLUME 44

A

Abstracts and Digests—National Tuberculosis Association—
Apical Localization of Phthisis 488
Carcinoma Simulating Pulmonary Tuberculosis..... 758
Importance of Postsanatorium Care of the Tuberculous, The 32
Opportunity, The 284
Pathologist Looks at TB 688
Pulmonary Tuberculosis in Harvard Medical Students.. 430
Spread of Tuberculosis in Families of Tuberculous Patients 194
Tuberculosis Death Rate Fails to Tell the Entire Story.. 828
Tuberculosis in Mental Schools and Hospitals in Ohio.. 608
What Is Early Tuberculosis 106
Accessory Urethra, Surgical Removal of a Deep—Melick.. 661
Agreement With Veterans Administration—Miscellany.. 692
Allen, Ruth I., et al—Tuberculosis Case Finding Studies in St. Louis County 21
W. E., et al—Perforated Diverticulum of the Sigmoid.. 278
Altemeier, W. A.—Chemotherapy in Surgery..... 803
Ambulation, Early Postpartum—Smiley 756
American Medical Association Centennial Session—Editorial 490
Directory Information Being Collected—Editorial.... 832
An Analysis of One Hundred Cases of Poliomyelitis—Jones and Dickson 881
Ankle, Treatment of Simple Fractures of the—Key..... 270
Annual Session—Editorials 109, 199, 831, 908
Minutes—Organization Activities 496
Program—Organization Activities 110, 206
Aortography, Studies on Translumbar—Vitt and Melick.. 749
Arthralgia, Postrheumatic—Roche 896

B

Barnard Free Skin and Cancer Hospital Research Report for 1946—Cowdry—Special Article 485
Bartlett, Robert W.—Nodular Goiter 576
Berg, Ralph—Traumatic Rupture of the Intestine..... 484
Blattner, Russell J.—Diagnosis and Treatment of Poliomyelitis 886
Blue Cross, Surgical Care Celebrate—Editorial..... 490
Bohne, W. R.—Fractures of the Hip..... 267
Bohrer, E. R., and Ossman, J. A.—Tularemic Pneumonia 659
Book Reviews—
Alexander, Harry L.—Synopsis of Allergy..... 906
Allen, Edgar V., et al—Peripheral Vascular Diseases.... 286
Raymond B.—Medical Education and the Changing Order 912
Allergy in Theory and Practice—Cooke..... 350
Ambulatory Proctology—Cantor 107
Anesthesia in General Practice—Cullen..... 288
Ash, J. E.—Pathology of Tropical Diseases..... 107
Atlas of Cardiovascular Disease—Treiger..... 906
Baetjer, Anna M.—Women in Industry..... 441
Barker, Nelson W., et al—Peripheral Vascular Diseases 286
Bell, E. T.—Renal Diseases..... 617
Berg, Roland H.—The Challenge of Polio..... 438
Bibliography of Infantile Paralysis—Edited by Fishbein 542
Bone and Bones—Weinmann and Sicher..... 846
Brunner, Hans—Intracranial Complications of Ear, Nose and Throat Infections 441
Canton, Alfred J.—Ambulatory Proctology..... 107
Cecil, Russell L.—Textbook of Medicine..... 765
Chadwick, Henry D.—The Modern Attack on Tuberculosis 45
Challenge of Polio, The—Berg..... 438
Chest, The—Rigler 47
Chideckel, Maurice—The Romance of Human Architecture 442
Cipollaro, Anthony C.—X-Rays and Radium in the Treatment of Disease of the Skin..... 350
Clinical Hematology—Wintrobe 360
Clinical Laboratory Diagnosis—Levinson and MacFate 114
Common Contagious Diseases, A Manual of the—Stimson 689
Cooke, Robert A.—Allergy in Theory and Practice..... 350
Cosmetics and Dermatitis—Schwarts and Peck..... 442
Courage and Devotion Beyond the Call of Duty—Mead Johnson & Co. 442
Cullen, Stuart C —Anesthesia in General Practice..... 288
Curtis, Arthur Hale—Textbook of Gynecology..... 286
Cushny, Arthur R.—Pharmacology and Therapeutics.... 359
Daniels, Lucille—Muscle Testing..... 438
Davidoff, Leo M.—The Normal Encephalogram..... 540
Davis, Loyal—The Principle of Neurological Surgery.... 45
DeLee, Joseph B.—Principles and Practice of Obstetrics 442
Diabetes—John 202
Diagnosis and Treatment of Pulmonary Tuberculosis, The—Stone and Dufault..... 35
Differential Diagnosis of Jaundice, The—Schiff..... 844
Disease of the Retina—Elwyn..... 697
Diseases of Metabolism—Duncan..... 617
of the Chest—Rubin..... 618
Doctor, Don't Let Me Die—Keiner..... 846
Dufault, Paul—The Diagnosis and Treatment of Pulmonary Tuberculosis 35
Duncan, Garfield G.—Diseases of Metabolism..... 617
Dunton, William Rush Jr.—Prescribing Occupational Therapy 196
Dwyer, Sheila Maureen—Modern Urology for Nurses.... 196
Dyke, Cornelius G.—The Normal Encephalogram..... 540
Effect of Smallpox on the Destiny of the Amerindian—Stearn 205
Elwyn, Herman—Disease of the Retina..... 697
Experience With Folic Acid—Spies..... 912
Eye Manifestations of Internal Diseases—Tassman.... 107
Fish, George W.—Modern Urology for Nurses..... 196
Fishbein, Morris—Edited by—Bibliography of Infantile Paralysis 542
—A History of the American Medical Association 1847-1947 609
—Medical Uses of Soap..... 350
Fleming, Sir Alexander—Penicillin—Its Practical Application 47
Friedenwald, Harry—The Jews and Medicine..... 360
Fundamentals of Clinical Neurology—Merritt, Mettler and Putnam 542
Gordon, Edgar S.—Nutritional and Vitamin Therapy in General Practice 766
Greenhill, J. P.—Principles and Practice of Obstetrics.. 442
Grollman, Arthur (revised by)—Pharmacology and Therapeutics 359
Gynecological and Obstetrical Pathology—Novak..... 542
Gynecology—Wharton 914
Haden, Russell L.—Principles of Hematology..... 205
Hawk, Philip B.—Practical Physiological Chemistry.... 542
Head, Neck and Trunk—Quiring..... 542
Hines, Edgar A., et al—Peripheral Vascular Disease.... 286
History of the American Medical Association 1847 to 1947—Fishbein 609
Hodges, Fred Jenner—Radiology for Medical Students 617
Holt, John Floyd—Radiology for Medical Students..... 617
Human Ear in Anatomical Transparencies—Polyak and Judd 115
Hygiene—Meredith 766
Hyman, Harold Thomas—An Integrated Practice of Medicine 617
Integrated Practice of Medicine, An—Hyman..... 617
Intracranial Complications of Ear, Nose and Throat Infections—Brunner 441
Israel, S. Leon—Menstrual Disorders and Sterility, Diagnosis and Treatment of..... 441
Jews and Medicine, The—Friedenwald..... 360
John, Henry J.—Diabetes..... 202
Judd Delbert K.—Human Ear in Anatomical Transparencies 115
Keiner, S. S.—Doctor, Don't Let Me Die..... 846
Kitching, Howard—Sex Problems of the Returned Veteran 202
Lampe, Isadore—Radiology for Medical Students..... 617
Lange, Jack D.—Physician's Handbook..... 697
Levinson, Samuel A.—Clinical Laboratory Diagnosis... 114
MacFate, Robert P.—Clinical Laboratory Diagnosis.... 114
MacKee, George M.—X-Rays and Radium in the Treatment of Disease of the Skin..... 350
Manwell, Reginald D.—Practical Malariology..... 765
Mason, Robert L.—Preoperative and Postoperative Treatment 540
Mazer, Charles—Menstrual Disorders and Sterility, Diagnosis and Treatment of..... 441
Mead Johnson & Co.—Courage and Devotion Beyond the Call of Duty 442
Medical Education and the Changing Order—Allen.... 912
Research—Smith 288
Uses of Soap—Fishbein 350
Medicine in the Changing Order—New York Academy of Medicine Committee 442
Mengert, William F.—Postgraduate Obstetrics..... 760
Menstrual Disorders and Sterility, Diagnosis and Treatment of—Mazer and Israel..... 441
Mental Mischief and Emotional Conflicts—Sadler..... 697
Meredith, Florence L.—Hygiene 766
Merritt, H. Houston—Fundamentals of Clinical Neurology 542
Mettler, Fred A.—Fundamentals of Clinical Neurology.. 542
Mobley, H. E.—Synopsis of Operative Surgery..... 760
Modern Attack on Tuberculosis, The—Chadwick and Pope 45
Urology for Nurses—Dwyer and Fish..... 196
Muscle Testing, Techniques of Manual Examination—Daniels, Williams and Worthingham..... 438
New York Academy of Medicine Committee—Medicine in the Changing Order..... 442
Normal Encephalogram, The—Davidoff and Dyke..... 540
Noval, Emil—Gynecological and Obstetrical Pathology.. 542
Nutritional and Vitamin Therapy in General Practice—Gordon 766
Occupational Diseases of the Skin—Schwartz, Tulipan and Peck 846
Ophthalmology in the War Years—Wiener..... 107
Oser, Bernard L.—Practical Physiological Chemistry.. 542
Pathology of Tropical Diseases—Ash and Spitz..... 107
Peck, Samuel M.—Cosmetics and Dermatitis..... 442
—Occupational Diseases of the Skin..... 846
Penicillin—Its Practical Application—Fleming..... 47
Peripheral Vascular Diseases—Allen, Barker and Hines 286
Pharmacology and Therapeutics—Cushny..... 359
Physician's Handbook—Warkentin and Lange..... 697
Polyak, Stephen L.—Human Ear in Anatomical Transparencies 115

Pope, Alton S.—The Modern Attack on Tuberculosis... 45
Postgraduate Obstetrics—Mengert 760
Potter, Edith L.—Rh—Its Relation to Congenital Hemolytic Disease and to Intragroup Transfusion Reactions 844
Practical Malariology—Russell, West and Manwell..... 765
Physiological Chemistry—Hawk, Oser and Summerson 542
Preoperative and Postoperative Treatment—Mason and Zintel 540
Prescribing Occupational Therapy—Dunton..... 196
Primer for Diabetic Patients—Wilder..... 432
Principles and Practice of Obstetrics—DeLee and Greenhill 442
of Hematology—Haden 205
of Neurological Surgery—Davis 45
Putnam, Tracy Jackson—Fundamental of Clinical Neurology 542
Quiring, Daniel P.—Head, Neck and Trunk..... 542
Radiology for Medical Students—Hodges, Lampe and Holt 617
Renal Disease—Bell 617
Rh—Its Relation to Congenital Hemolytic Disease and to Intragroup Transfusion Reactions—Potter..... 844
Rigler, Leo G.—The Chest..... 47
Romance of Human Architecture, The—Chideckel..... 442
Rubin, Eli H.—Diseases of the Chest..... 618
Russell, Paul F.—Practical Malariology..... 765
Sadler, William S.—Mental Mischief and Emotional Conflicts 697
Schiff, Leon—The Differential Diagnosis of Jaundice... 844
Schwartz, Louis—Cosmetics and Dermatitis..... 442
—Occupational Diseases of the Skin..... 846
Sex Problems of the Returned Veteran—Kitching..... 202
Sicher, Harry—Bone and Bones..... 846
Smith, Austin—Medical Research..... 288
Spies, Tom—Experiences With Folic Acid..... 912
Spitz, Sophie—Pathology of Tropical Diseases..... 107
Stearn, Allen E.—The Effect of Smallpox on the Destiny of the Amerindian..... 205
E. Wagner—The Effect of Smallpox on the Destiny of the Amerindian 205
Stimson, Philip Moen—Manual of the Common Contagious Diseases 689
Stone, Moses J.—The Diagnosis and Treatment of Pulmonary Tuberculosis 35
Summerson, William H.—Practical Physiological Chemistry 542
Synopsis of Allergy—Alexander..... 906
of Operative Surgery—Mobley 760
Tassman, I. S.—Eye Manifestations of Internal Diseases 107
Textbook of Gynecology—Curtis..... 286
of Medicine, A—Cecil..... 765
Treiger, Irving J.—Atlas of Cardiovascular Diseases... 906
Tulipan, Louis—Occupational Diseases of the Skin.....846
Warkentin, John—Physician's Handbook..... 697
Weinmann, Joseph P.—Bone and Bones..... 846
West, Luther S.—Practical Malariology..... 765
Wharton, Lawrence R.—Genecology 914
Wiener, Meyer—Ophthalmology in the War Years..... 107
Wilder, Russell M.—Primer for Diabetic Patients..... 432
Williams, Marion—Muscle Testing..... 438
Wintrobe, Maxwell M.—Clinical Hematology..... 360
Women in Industry—Baetjer..... 441
Worthingham, Catherine—Muscle Testing..... 438
X-Rays and Radium in the Treatment of Disease of the Skin—MacKee and Cipollare..... 350
Zintel, Harold A.—Preoperative and Postoperative Treatment 540
Brain Abscess, The Diagnosis and Treatment of—Carmichael 684
Brasher, Charles A.—The Place and Function of the Tuberculosis Sanatorium in Missouri..... 102
Breyfogle, Herbert S., and Richardson, Orville—Medico-legal Problems in Distinguishing Accident From Suicide With Special Reference to Missouri Cases..... 423
and Willman, Arnold—A Survey of the Laws of Missouri Relating to the Practice of Medicine..... 404
British Medical Journal—Editorial..... 289
Bronchial Tree, The Diagnosis and Treatment of Lesion of the—Olsen 731
Brooks, Barney—The Making of a Surgeon Yesterday and Today—Special Article..... 578
Burke, Dorothy W., et al—Tuberculosis Case Finding Studies in St. Louis County..... 21

C

Cancer Clinics at the Ellis Fischel State Cancer Hospital Miscellany..42, 113, 200, 355, 436, 493, 614, 694, 764, 840, 910
Compensation in One Trauma—Seelig..... 27
Care of Veterans by Private Practitioners—Editorial.... 691
Carlson, Hjalmar E.—General Considerations of the Treatment of Renal Calculi..... 571
Carmichael, Francis A., Jr.—The Diagnosis and Treatment of Brain Abscess..... 684
Case of Microaerophilic Hemolytic Streptococcus Infection of a Pilonidal Dimple—Hackmeyer and Royer..... 344
Report of Barnes Hospital—Glaser.....184, 664
Cash Sickness Benefits for Railroad Workers Go Into Effect—Miscellany 614
Chemotherapy in Medical Conditions—Nichols..... 809
in Surgery—Altemeier 803
Coldwater, Kenneth B.—Surgical Treatment of Intervertebral Disk Lesions of Veterans..... 651
Colles Fracture—Pickard 258
Committee on Control of Venereal Disease—Organization Activities 840
Committee on Maternal Welfare Gives Information on EMIC—Organization Activities 612
Compensation in One Trauma Cancer—Seelig..... 27
Compulsory Health Insurance a Political Issue—Miscellany 840
Condyloma Acuminatum—Marks 749
Congenital Absence of Vagina: Case Report—Crossen..... 903
Contact Dermatitis—Sutton 481
Cordonnier, Justin J.—Dissolution of Staghorn Calculus in Kidney Pelvis by Intermittent Irrigation With Solution "G" 179
Coroner Proceedings in Relation to Workmen's Compensation Hearings—Goodman 413
Council, The—Organization Activities.....440, 836
Cowdry, E. V.—Barnard Free Skin and Cancer Hospital Research Report for 1946—Special Article..... 485
Criteria for Diagnosis of Psychosomatic Symptoms—Saslow 894
Crossen, Robert J.—Congenital Absence of Vagina: Case Report 903
Cullen, Charles E.—Legal Considerations of Blood Alcohol Analysis 410

D

Deaths—
Aufderheide, William D. 493
Baker, Wilbur A. 290
Bardenheier, Frederick G. A. 910
Barnett, Cecil G. 200
Bieri, Jacob A. 493
Brandt, Benjamin F. 493
Camp, George Hull 200
Carle, Horace W. 493
Clopton, Malvern B. 493
Coffee, Cyrus E. 764
Donnell, Jesse Franklin 910
Dowell, George S. 493
Drury, Robert L. 493
Edens, Louis M. 290
Elkins, C. Bryant 290
Geiger, Charles G. 200
Gray, John M. 493
Hemker, William H. 39
Hempelmann, Louis H. 200
Kemp, Thomas J. 290
Klinger, Thomas O. 200
Knabb, Frank P. 290
Lancaster, Herschel W. 200
Loewenstein, Harry M. 764
Luton, Lionel Sinclair 493
Maltby, Burton 200
Mathias, Edward L. 200
Nicks, Harry G. 493
Ogilvie, Fred Lee 39
Outland, John H. 493
Padgett, Earl C. 41
Patrick, Philip Lawrence 910
Ringen, August H. 290
Rohlfing, Arthur H. 764
Roseberry, Eugene C. 200
Sheetz, Bertha E. S. 764
Smith, Jacob D. 493
Sneed, Carl M. 200
Stevens, Lawrence H. 910
Storrs, Henry J. 493
Thompson, Robert V. 200
Tuholske, Lister H. 493
Vitt, Rudolph S. 764
Waihoja, William J. 764
Walker, George W. 200
Lester L. 764
Warren, Wilber Lloyd 41
Wilkens, John A. 41
Williams, John R. 200
Reuben H. 290
Wood, Walter S. 493
Woolsey, Calvin Lee 200
Yater, Joseph M. 290
Demerol—Miscellany 45
Development of the Veterans Administration Residency Training Program—Walton 824
Diagnosis and Treatment of Brain Abscess, The—Carmichael 684
and Treatment of Lesions of the Bronchial Tree, The —Olsen 731
and Treatment of Poliomyelitis—Blattner 886
Dickson, Frank D. and Jones, Asa—An Analysis of One Hundred Cases of Poliomyelitis 881
Dissolution of Staghorn Calculus in Kidney Pelvis by Intermittent Irrigation With Solution "G"—Cordonnier 179
Dixon, O. Jason—Ear Canal Infections..... 181
Duncan, Garfield G.—Some Nutritional Pitfalls in General Hospitals 743

E

Ear Canal Infections—Dixon 181
Early Postpartum Ambulation—Smiley..... 756
Editorials—
American Medical Association Centennial Session..... 490

Directory Information Being Collected 832
Annual Session 109, 199, 831
Blue Cross, Surgical Care Celebrate 908
British Medical Journal 289
Care of Veterans by Private Practitioners 691
Eighty-Ninth Annual Session 353
Gold Medal for General Practitioner 761
Health Education Workshop 831
in the United States, First Half of 1947 909
Hospital Survey in Missouri 611
Kansas City Southwest Clinical Society 831
to Hold Silver Anniversary Conference 691
Life Span of the Presidents 37
Medical Education in the United States 691
Care 908
Service 908
Sidelights 831
Missouri Medical Service Annual Session 289
Mueller, Robert, M.D., President-Elect 433
National Conference of County Medical Society Officers 353
Need for Nurses 434
for Pneumothorax and Pneumoperitoneum Treatment 908
New Drugs 761
Physicians Locating in Rural Communities 434
Prepayment Medical and Surgical Care in Missouri 611
Resolutions Presented to the American Medical Association 611
Reviews Health and Welfare Terms in Contracts 38
Student Nurse Enrollment 289
Use of Penicillin 109
Vascular Allergy 832
West, Olin, M.D., Resigns as President-Elect of American Medical Association 353
Eighty-Ninth Annual Session—Editorial 353
Elbow Joint, Fractures About the—Yancey 262
Elman, Robert, et al—Perforated Diverticulum of the Sigmoid 278
Endocrine Problems From the Pediatrist's Viewpoint—Hansen 94

F

Financial Statement for 1946—Organization Activities 290
Flanagan, Stewart D.—Legal Considerations Incident to the Performance of Autopsies by Coroners and Pathologists in Missouri 418
Fracture Service, Some Points in the Organization of a Rural Hospital—Stewart 257
Fractures About the Elbow Joint—Yancey 262
of the Hip—Bohne 267

G

Gaikins, G. A., et al—Perforated Diverticulum of the Sigmoid 278
General Considerations of the Treatment of Renal Calculi—Carlson 571
Glaser, Robert J.—Case Report of Barnes Hospital 184, 664
Gold Medal for General Practitioner—Editorial 761
Goodman, Courtney S.—Coroner Proceedings in Relation to Workmen's Compensation Hearings 413
Griffith, Wendell H.—Nutritional Deficiencies as a Cause of Disease 738

H

Hackmeyer, R.—A Case of Microaerophilic Hemolytic Streptococcus Infection of a Pilonidal Dimple 344
Hamilton, Burton E.—Heart Disease in Pregnancy 17
Hansen, Arild E.—Endocrine Problems From the Pediatrist's Viewpoint 94
Hartnett, Leo J.—Visualization of the Maternal Circulation at the Site of the Placenta (Placentagrams) 754
Health Education Workshop—Editorial 831
in the United States, First Half of 1947—Editorial 909
Heart Disease in Pregnancy—Hamilton 17
Helwig, Ferdinand C.—Speculative High Points on the Cause, Immunity and Pathology of Poliomyelitis 882
Hip, Fractures of the—Bohne 267
Hospital Survey in Missouri—Editorial 611

I

Intervertebral Disk Lesions of Veterans, Surgical Treatment of—Woolsey and Coldwater 651
Intestine, Traumatic Rupture of the—Berg 484

J

Johnson, Herman W.—Uterine Ring Dystocia 729
Joint Tasks of Law and Medicine—Smith 403
Jones, Asa and Dickson, Frank D.—An Analysis of One Hundred Cases of Poliomyelitis 881

K

Kansas City Southwest Clinical Society—Editorial 831
to Hold Silver Anniversary Conference—Editorial 691
Key, J. Albert—Treatment of Simple Fractures of the Ankle 270
Kidney Pelvis, Dissolution of Staghorn Calculus in, by Intermittent Irrigation With Solution "G"—Cordonnier 179

L

Lawyer's Comments on Medical Testimony in Medicolegal Cases, A—Madden 900
Legal Considerations Incident to the Performance of Autopsies by Coroners and Pathologists in Missouri—Flanagan 418
of Blood Alcohol Analysis—Cullen 410
Legislation 110
Life Span of the Presidents, The—Editorial 37

M

Madden, John G.—A Lawyer's Comments on Medical Testimony in Medicolegal Cases 900
Making of a Surgeon Yesterday and Today—Brooks—Special Article 578
Malaria, The Treatment of—Saunders 89
Marks, Mark M.—Condyloma Acuminatum 749
McCarroll, H. R.—Treatment of Poliomyelitis in the Recovery and Residual Phases 888
McGavran, E. G., et al—Tuberculosis Case Finding Studies in St. Louis County 21
Medical Care of the Veteran—Zollinger 813
—Editorial 908
Education in the United States—Editorial 691
Service—Editorial 908
Sidelights—Editorial 831
Medicolegal Aspects of the Sale and Use of Barbiturates—Pruitt 419
Medicolegal Cases, A Lawyer's Comments on Medical Testimony in—Madden 900
Medicolegal Problems in Distinguishing Accident From Suicide With Special Reference to Missouri Cases—Breyfogle and Richardson 423
Medicolegal Problems, Symposium on—
Coroner Proceedings in Relation to Workmen's Compensation Hearings—Goodman 413
Joint Tasks of Law and Medicine—Smith 403
Legal Considerations Incident to the Performance of Autopsies by Coroners and Pathologists in Missouri—Flanagan 418
of Blood Alcohol Analysis—Cullen 410
Medicolegal Aspects of the Sale and Use of Barbiturates—Pruitt 419
Problems in Distinguishing Accident From Suicide With Special Reference to Missouri Cases—Breyfogle and Richardson 423
Survey of the Laws of Missouri Relating to the Practice of Medicine—Breyfogle and Willmann 404
Melick, W. F., and Vitt, A. E.—Studies on Translumbar Aortography 749
—Surgical Removal of a Deep Accessory Urethra 661
Middleton, William S.—Some Clinical Experiences in the European Theater of Operations 735
Miscellany—
Agreement With Veterans Administration 692
Cancer Clinics at the Ellis Fischel State Cancer Hospital 42, 113, 200, 355, 436, 493, 614, 764, 840
Cash Sickness Benefits for Railroad Workers Go Into Effect 614
Compulsory Health Insurance a Political Issue 910
Demerol 45
Nursing Crisis, The 910
Program on Diseases of the Chest 113, 200
Rural Health Conference to Be Held in Chicago February 7 and 8 42
Missouri Medical Service Annual Session—Editorial 289
Mueller, Robert, M.D., President-Elect—Editorial 433

N

National Conference of County Medical Society Officers—Editorial 353
Tuberculosis Association—Abstracts and Digest 32, 106, 194, 284, 430, 488, 608, 688, 758, 828
Need for Nurses—Editorial 434
for Pneumothorax and Pneumoperitoneum Treatment—Editorial 908
New Drugs—Editorial 761
News Notes 39, 109, 199, 290, 353, 436, 493, 612, 692, 762, 834, 909
Nichols, Donald R.—Chemotherapy in Medical Conditions 809
Nodular Goiter—Bartlett 576
Nursing Crisis, The—Miscellany 910
Nutritional Deficiencies as a Cause of Disease—Griffith 738
Pitfalls in General Hospitals, Some—Duncan, Ling, Floeck and Grand 743

O

Olsen, Arthur M.—The Diagnosis and Treatment of Lesions of the Bronchial Tree 731
Organization Activities—
Annual Session Minutes 496
Program 110, 206
Committee on Control of Venereal Disease 840
on Maternal Welfare Give Information on EMIC 612
Council 440, 836
Financial Statement for 1946 290
Scientific Exhibits 210
Technical Exhibits 216
Ossman, J. A., and Bohrer, E. R.—Tularemic Pneumonia 659

P

Perforated Diverticulum of the Sigmoid—Elman, Allen, Gaikins, Sinkler, et al 278
Physicians Locating in Rural Communities—Editorial 434
Pickard, Nicholas—Colles Fracture 258

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Pilonidal Dimple, A Case of Microaerophilic Hemolytic Streptococcus Infection of—Hackmeyer and Royer... 344
Place and Function of the Tuberculosis Sanatorium in Missouri—Brasher 102
Placenta (Placentagrams), Visualization of the Maternal Circulation at the Site of the—Hartnett..... 754
Poliomyelitis, Symposium on
An Analysis of One Hundred Cases of Poliomyelitis —Jones and Dickson 881
Diagnosis and Treatment of Poliomyelitis—Blattner.... 886
Speculative High Points on the Cause, Immunity and Pathology of Poliomyelitis—Helwig 882
Treatment of Poliomyelitis in the Recovery and Residual Phases—McCarroll 888
Pollock, Leo H.—Traumatic Delayed Rupture of the Spleen 654
Postrheumatic Arthralgia—Roche 896
Prepayment Medical and Surgical Care in Missouri—Editorial 611
Program on Diseases of the Chest—Miscellany.....113, 200
Pruitt, Roy S.—Medicolegal Aspects of the Sale and Use of Barbiturates 419
Pruritus Ani, The Treatment of—Wilson..... 575
Psychosomatic Symptoms, Criteria for Diagnosis of—Saslow 894

R

Renal Calculi, General Considerations of the Treatment of —Carlson 571
Resolutions Presented to the American Medical Association—Editorial 611
Reviews Health and Welfare Terms in Contracts—Editorial 38
Richardson, Orville, and Breyfogle, Herbert S.—Medicolegal Problems in Distinguishing Accident From Suicide With Special Reference to Missouri Cases..... 423
Roche, Maurice B.—Postrheumatic Arthralgia 896
Roster of Members 117
Royer, Earl L.—A Case of Microaerophilic Hemolytic Streptococcus Infection of a Pilonidal Dimple..... 344
Rural Health Conference to Be Held in Chicago February 7 and 8—Miscellany 42

S

Sarcomas of the Soft Parts—Stout..... 329
Saslow, George—Criteria for Diagnosis of Psychosomatic Symptoms 894
Saunders, G. M.—The Treatment of Malaria..... 89
Scientific Exhibits—Organization Activities..... 210
Seelig, M. G.—Compensation in One Trauma Cancer.... 27

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Sigmoid, Perforated Diverticulum of the—Elman, Allen, Gaikins, Sinkler, et al 278
Sinkler, W. H., et al—Perforater Diverticulum of the Sigmoid 278
Smiley, William L.—Early Postpartum Ambulation 756
Smith, Hubert Winston—Joint Tasks of Law and Medicine 404
Society Proceedings—
Barry-Lawrence-Stone County Medical Society 356, 494
Barton-Dade County Medical Society 912
Carroll County Medical Society 200
Carter-Shannon County Medical Society 114
Clay County Medical Society 113
Cooper County Medical Society 293
County Society Honor Roll 1947 356
Eighth Councilor District 201, 912
Fifth Councilor District 614
Grundy-Daviess County Medical Society 41
Harrison County Medical Society 911
Henry County Medical Society 911
Jefferson County Medical Society 41
Linn County Medical Society 437
Mercer County Medical Society 437, 494
Miller, Moniteau, Morgan County Medical Societies 844
Ninth Councilor District 494
Pettis County Medical Society 911
Phelps-Crawford-Dent-Pulaski County Medical Society 42
Randolph-Monroe County Medical Society 41
Randolph-Monroe-Chariton County Medical Society .. 113
St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society 202
Ste. Genevieve County Medical Society 114
St. Louis County Medical Society 113, 201, 293, 356, 437, 494, 614, 844, 911
Scott County Medical Society 294, 438
Sixth Councilor District 293
South Central Councies Medical Society 114, 202, 293, 356, 438, 494, 617, 694, 764, 912
Tenth Councilor District 294
Vernon-Cedar County Medical Society 356
Some Clinical Experiences in the European Theater of Operations—Middleton 735
Nutritional Pitfalls in General Hospitals—Duncan, Ling, Floeck and Grand 743
Points in the Organization of a Rural Hospital Fracture Service—Stewart 257
Special Articles—
Barnard Free Skin and Cancer Hospital Research Report for 1946—Cowdry 485
Making of a Surgeon Yesterday and Today—Brooks 578
Spector, H. I., et al—Tuberculosis Case Finding Studies in St. Louis County 21
Speculative High Points on the Cause, Immunity and Pathology of Poliomyelitis—Helwig 882
Spleen, Traumatic Delayed Rupture of—Pollock 654
Stewart, William J.—Some Points in the Organization of a Rural Hospital Fracture Service 257
Stout, Arthur Purdy—Sarcomas of the Soft Parts 329
Tumor Seminar 334
Student Nurse Enrollment—Editorial 289
Studies of Translumbar Aortography—Vitt and Melick 749
Surgical Removal of a Deep Accessory Urethra—Melick .. 661
Treatment of Intervertebral Disk Lesions of Veterans —Woolsey and Coldwater 651
Survey of the Laws of Missouri Relating to the Practice of Medicine—Breyfogle and Willmann 404
Sutton, Richard L.—Contact Dermatitis 481

T

Technical Exhibits—Organization Activities 216
Traumatic Delayed Rupture of the Spleen—Pollock 654
Rupture of the Intestine—Berg 484
Treatment of Malaria, The—Saunders 89
of Poliomyelitis in the Recovery and Residual Phases —McCarroll 888
of Pruritus Ani, The—Wilson 575
of Simple Fractures of the Ankle—Key 270
Tuberculosis Case Finding Studies in St. Louis County —Spector et al 21
Sanatorium in Missouri, The Place and Function of the —Brasher 102
Tularemic Pneumonia—Ossman and Bohrer 659
Tumor Seminar—Stout 334
Adamantinoma of Mandible 589
Adenoma of Bronchus 679
Bronchial Epithelial Hyperplasia and Metaplasia With Extension Into Alveoli Simulating Alveolar Carcinoma 680
Carcinoma, Cylindromatous Type, of Submaxillary Gland 600
of Breast With Paget's Disease 584
(Hepatome) of Liver 676
of Parotid Salivary Gland 598
Chronis Cystic Disease (Fibro-adenomatoisis With Extreme Hyperplasia) 334
Fibrous Xanthoma (Sclerosing Hemangioma Type) of Leg Associated With Comedone 594
Giant Cell Tumor of Tibia 675
Glomus Tumor of the Elbow 591
Granular Cell Myoblastoma of the Breast 342
Hodgkin's Disease 587
Leiomyosarcoma of Arm 592
Liposarcoma of Thigh 586
Lymphosarcoma (Lymphocytic Cell Type) of Ileum 602
Malignant Melanoma of Foot 336
Mesothelioma (?) of Ileum 607
Mixed Tumor of Sole of Foot 341
Multiple Myeloma (Plasma Cell Type) With Early Manifestation in the Gum of Mandible 588
Neurilemona of Lateral Costal Region 596
Osteogenic Sarcoma of the Mandible 590
Sacrococcygeal Chordoma 678
Undiagnosed Tumor of Astragalus 674
Tumor of the Thigh 585

U

Use of Penicillin—Editorial 109
Uterine Ring Dystocia—Johnson 729

V

Vascular Allergy—Editorial 832
Veteran, The Medical Care of—Zollinger 813
Veterans Administration Residency Training Program, Development of—Walton 824
Visualization of the Maternal Circulation at the Site of the Placenta (Placentagrams)—Hartnett 754
Vitt, A. E., nd Melick, W. F.—Studies on Translumbar Aortography 749

W

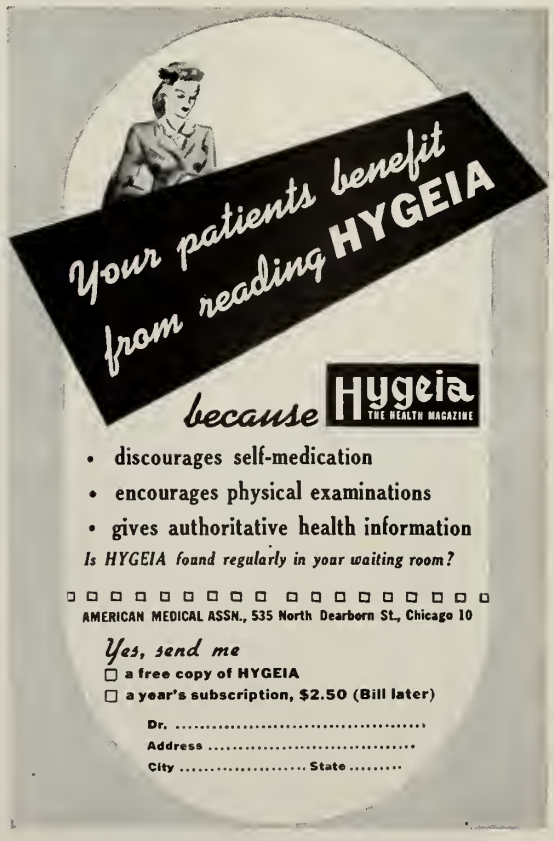
Walton, Franklin E.—The Development of the Veterans Administration Residency Training Program 824
West, Olin, M.D., Resigns as President-Elect of American Medical Association—Editorial 353
Willmann, Arnold J., and Breyfogle, Herbert S.—A Survey of the Laws of Missouri Relating to the Practice of Medicine 404
Wilson, Clifford C.—The Treatment of Pruritus Ani 575
Woman's Auxiliary to the Missouri State Medical Association 47, 115, 205, 359, 440, 496, 765, 844,
Woolsey, Robert D.—Surgical Treatment of Intervertebral Disk Lesions of Veterans 651

Y

Yancey, Daniel L.—Fractures About the Elbow Joint 262

Z

Zollinger, Robert M.—The Medical Care of the Veteran .. 813





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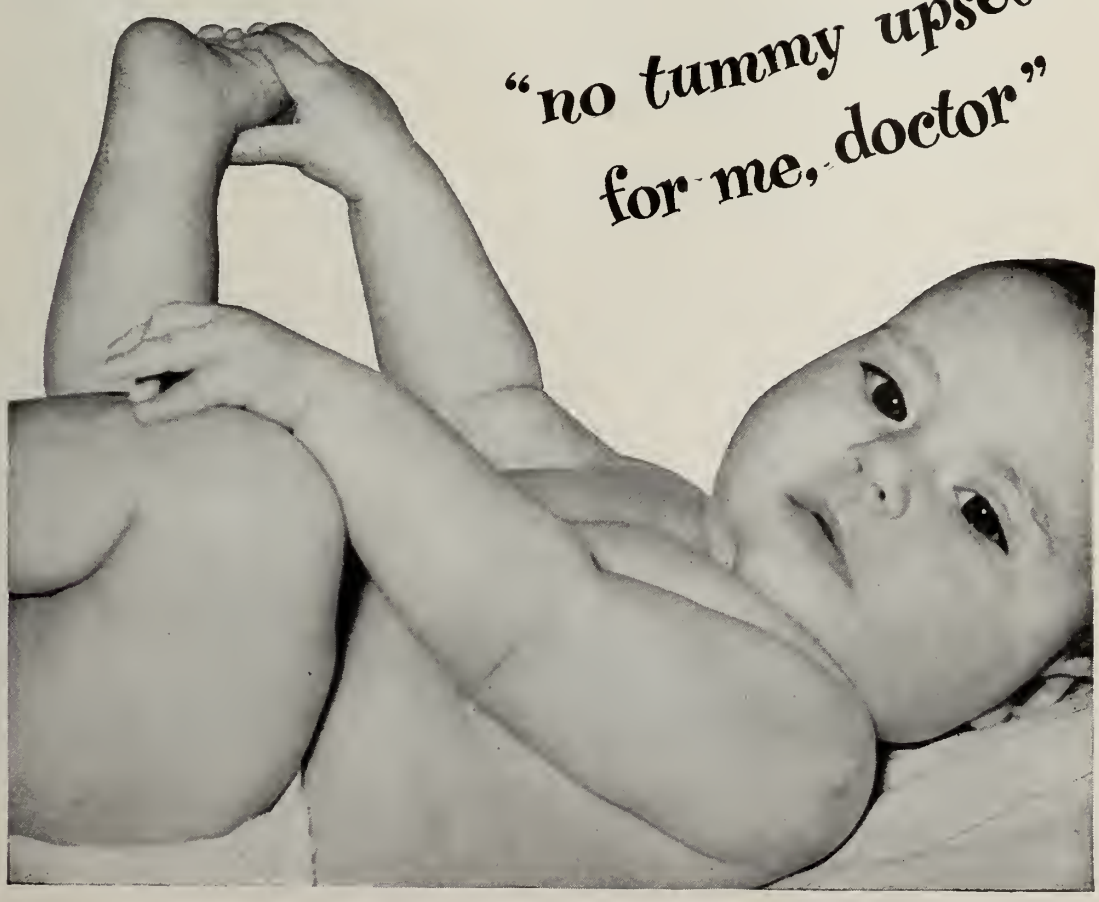
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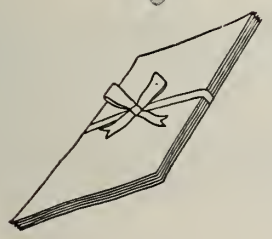
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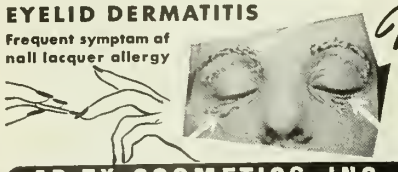
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INDEX TO ADVERTISERS

Abbott Laboratories 876
Ar-Ex Cosmetics, Inc. 932
Ayerst, McKenna & Harrison 873

Bilhuber-Knoll Corp. 877
Borcherdt Malt Extract Co. 932
Borden Company 925

Camel Cigarettes 868
Camp, S. H. & Company 924
Chicago Medical Society 877
Ciba Pharmaceutical Products, Inc. ..... Insert
Cook County Graduate School of Medicine 920

Duncan Laboratories 927

Faith Hospital 930

Glenwood Sanatorium 928
Gradwohl School of Laboratory Technique 929
Griner, A. J. Company 922

Hamilton-Schmidt Surgical Co. 932
Hanger, J. E., Inc. 929

Isle, W. E., Co. 930

Lilly, Eli & Company ..... Insert
Lov-e Brassiere Co. 926

M & R Dietetic Laboratories, Inc. 933
Major Clinic Association 869
Mead Johnson & Company 936
Medical Protective Company 880
Merck & Company, Inc. 879
Milwaukee Sanitarium 915
Miscellaneous Announcements 934
Mullen Ambulance Company 930

National Dairy Products Corp. 905
National Pathological Laboratory 934
Norbury Sanatorium 930
North Shore Health Resort 922

Parke, Davis & Company 866, 867, 935
Philip Morris & Company 874
Physicians Casualty Association 920
Pogue, Mary E. School 932
Producers Creamery Company 920

Quincy X-ray and Radium Laboratories 932

Radium Service Corp. 910
Ralph Sanitarium 878
Rexair, Inc. 907
Robinson Clinic 930

Schmid, Julius, Inc. 921
Searle, G. D. & Company 897
Smith-Dorsey Company 913
Stearns, Frederick & Company 923
Stokes Sanitarium 934
Swift & Company 899

U. S. Brewers Foundation, Inc. 929
U. S. Savings Bonds 931

Wallace Sanitarium 928
Wander Company 875
Winthrop Chemical Co. 871
Worrell, Dorothy 934

Zemmer Company 932
Zeno Trading Corp. 918

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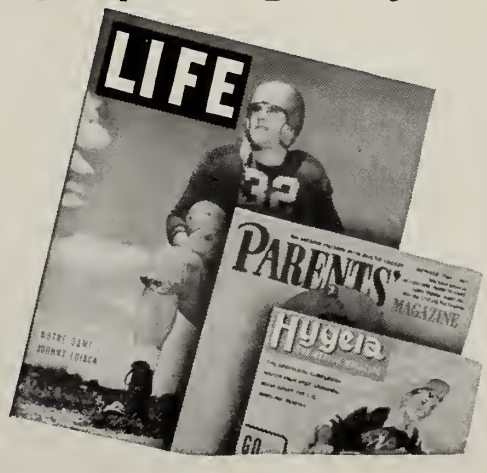


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